MARINE

Marine Corps Gazette

APRIL 1949

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THE NEW M1 COURSE ..... IV COVER

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THIS MONTH'S COVER: Loading a R5D is a little different from going down a net into a landing craft, but the principle is the same. Marines have to be prepared to arrive in the combat areas by air as well as sea. That's the point of LtCol Ormond R. Simpson's *Air Transportability in the Marine Corps* which begins on page 10. The photo is by Sgt Frank Few of LEATHERNECK and is of the 7th Marines during recent maneuvers at Camp Pendleton, Oceanside, California.

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THIS MONTH AND NEXT: The Supply Department buys a fairly large batch of GAZETTES each month for free distribution to various units and activities. Wondering just how the GAZETTE was being received we sent out a questionnaire a month or so ago to about 500 of these organizations. We were really flattered by the results. Almost every unit replied that they find the GAZETTE useful. Reserves feel that it bridges the gap with the regular establishment and keeps them in touch with things. FMF units and Marine detachments find it valuable as a training reference. Recruiting considers it good bait and also a ready source of public information items. Organized Reserve outfits use it to indoctrinate new recruits with Marine Corps history and traditions. Navy hospitals reported that it keeps their Marine patients from feeling forgotten. Some persons just said they liked to read it.

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TO THE EDITOR

Message Center

Equipment Pros and Cons . . .

DEAR SIR:

I have been impressed by the three articles of 1stLt Clarence E. Schwaneke. From his description I believe his pack would be a great improvement over the Marine Corps pack used during the war.

I have done a lot of camping in civilian life where I have had to pack in supplies and camp equipment. That Marine Corps pack though is the most attrocious thing I have ever worn. After I got overseas I made up a pack-sack of my own that I used for combat. I saved the Marine Corps issue pack for inspections only.

I like the looks of his utility uniform and I believe the men would look sharper in this uniform. I have seen a utility jacket cut down similar to the one shown in his sketch. However it did not have the "gusset action back." I believe the gusset action back would be a good addition as it should keep the uniform from binding and allow free movement of the body. I have one objection to the utility pants. The fastening at the bottom of the trouser leg should be some type of a tie, as men have different sizes of legs. A snapping or buttoning device is not flexible enough for changes in size.

As to his shelter-half I am strictly a kapok sleeping-bag advocate.

JOSEPH W. HARTER, JR
Major, USMCR

DEAR SIR:

Granted, certain items of equipment in the Marine Corps do need a "new look," but surely a more rigid testing ground should be provided than "sunny" California can offer. I refer to Lt Schwaneke's suggested changes.

Several of the best divisions in the Marine Corps during the "last" war trained on the beaches and in the canyons of Camp Pendleton. To my knowledge, it was neither authorized nor deemed necessary by at least one of these divisions to ever carry more than a poncho, and at times one blanket, while on maneuvers. Three blankets and a shelter tent not sufficient shelter for marines in California? What sort of unit was the lieutenant attached to?

Although FMF units did not generally use shelter tents, there were occasions during non-tactical training bivouacs when shelter tents were used. If I have ever seen one shelter tent pitched in complete darkness, I have seen a thousand; and never before reading the lieutenant's article did I realize that any difficulty had ever been experienced. What's more, they hardly looked "makeshift" the next morning. Surely the marines of today are as adept with their hands as those of six years ago.

At such time as infantry battalions are provided with sufficient motor transport to maintain a baggage train, sleeping bags should definitely be adopted. Until that time, negative. At present I should hate to attempt to locate my sleeping bag during an operation, for with its added weight it would undoubtedly have been dropped at the water's edge.

Snaps should definitely be excluded from any sleeping bag adopted by the Marine Corps. With the probability of its use in the extreme cold and snow of Arctic regions, snaps would be inoperative in short order. The snap would be filled with snow and freeze solid almost immediately. Contrary to opinion, zippers will not collect snow or mud and *will* operate under the most extreme conditions. A double zipper similar to that used in the Air Force sleeping bag permits the bag to be fully opened for airing and cleaning.

Rather than Lt Schwaneke's much talked of "ground cloth" may I suggest a pneumatic mattress similar to that adopted by the Air Force. In a deflated state it will consume no more space than the "ground cloth" and is the only article which will provide the needed insulation from the cold ground. It costs just a little more to travel first class.

Let's give our battle proved equipment credit until it has definitely been proved obsolete—and not in Southern California.

WILLIAM G. SHOOP
Major, USMC

DEAR SIR:

At the risk of appearing to persecute Lt Schwaneke with ideas that conflict with his most stimulating thoughts on

continued on page 4

Each month the GAZETTE pays five dollars for each letter printed. These pages are intended for comments and corrections on past articles and as a discussion center for pet theories, battle lessons, training expedients, and what have you. Correspondents are asked to keep their communications limited to 200 words or less. Signatures will be withheld if requested; however, the GAZETTE requires that the name and address of the sender accompany the letter as an evidence of good faith.

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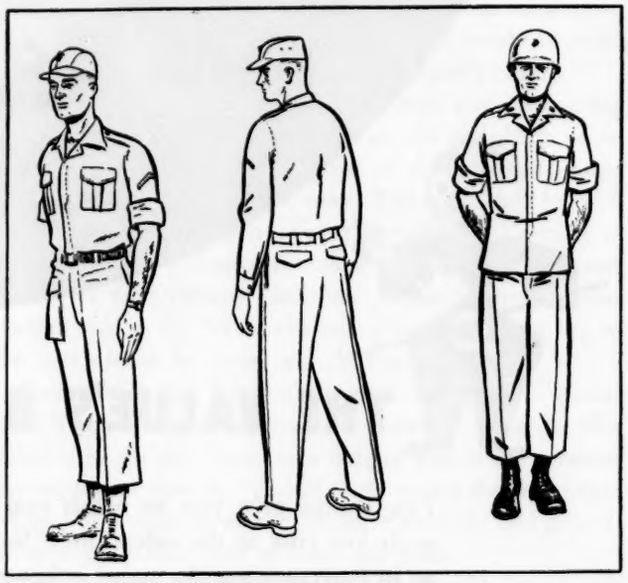
Message Center

continued from page 2

Marine equipment, I on the contrary commend him and herein add "two-bits." It Part III of his recent series on *A New Look For Individual Equipment* he ably describes the many faults of the present utility clothing and presents some good constructive ideas on how that so-called "uniform" might be improved in appearance and usefulness. However, as in his redesign of the Marine Corps pack, his new utility clothing is much more complicated in design and tailoring than seems necessary.

Our design for the utility clothing, which we will hereafter call the Summer Field Uniform, attempts to satisfy certain basic requirements of any combat type uniforms: It should be of strong material and neutral color. It should be of functional design and simple to manufacture. It should be a uniform. That is, it should be distinct and military enough in appearance so that it will be recognized as a uniform in any spot of the world and in no way associated with prison garb or laborers' coveralls. This latter requirement is a deficiency in our present uniform that has important psychological connotations which have been entirely neglected by our recent uniform planners.



. . . it will be comfortable and neat

The shirt and trousers of the Summer Field Uniform should be a darker shade of green than the present utilities. A real Marine green shade will allow for the bleaching action of a hot sun and the strong soaps of mobile and field laundry units. A better camouflage color can thereby be maintained instead of the various light shades of pastel greens typical of utility clothes today.

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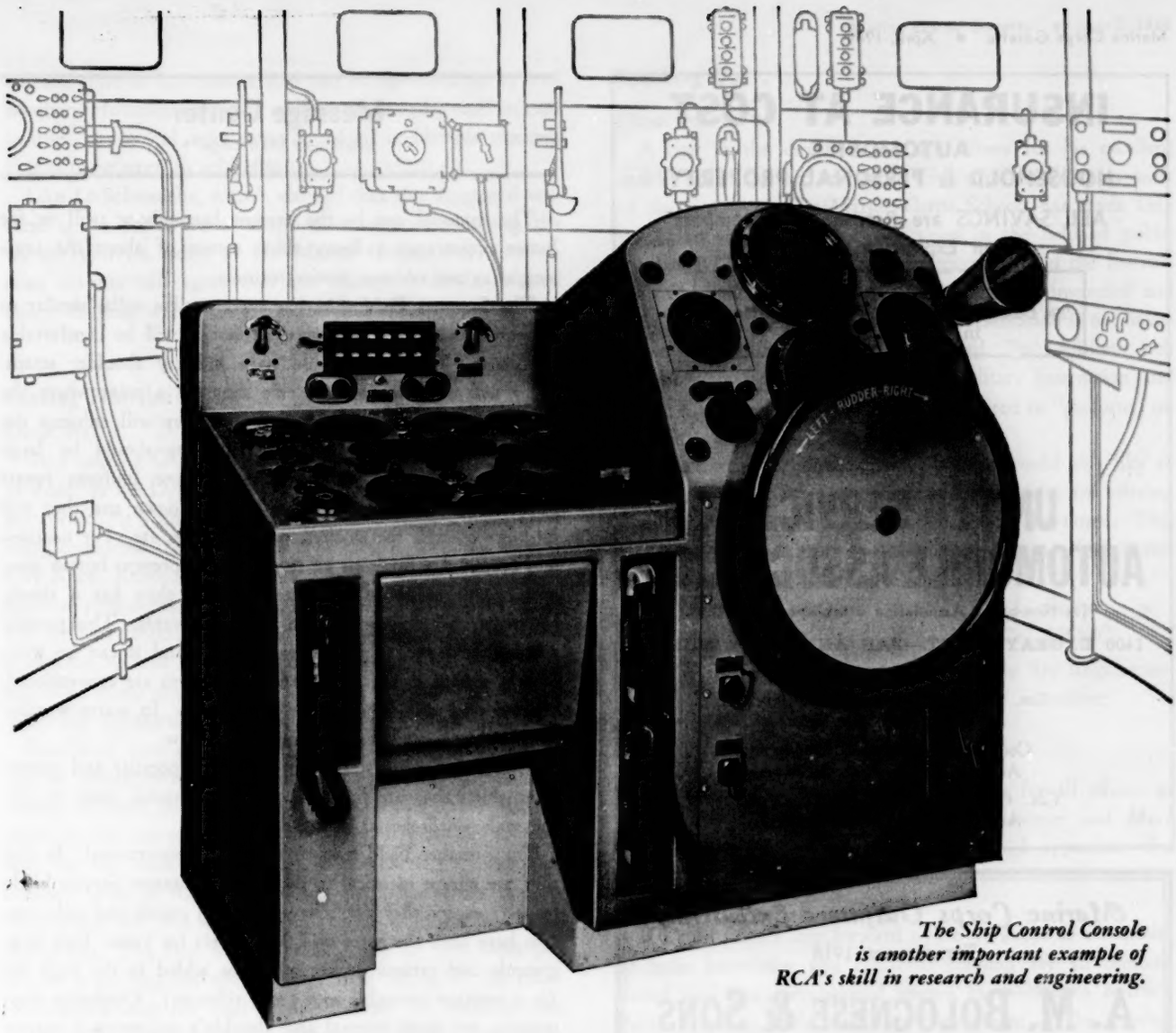

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Message Center

continued from page 4

The material can be the present herringbone twill or for better appearance a heavy chino cotton of about the same weight as our summer service trousers.

The Summer Field shirt has a convertible collar similar to civilian sport shirts. Buttoned or not it will be comfortable and neat. The shirt should have military shoulder straps. They will take the wear of rifle slings at a point where the present jacket usually falls apart and they will enhance the military appearance. The breast pockets should be large pleated ones similar to all other Marine uniform breast pockets. One snap should keep the flap down and they will be large enough for smokes, pencils, notes, etc. For neatness and economy a fly front on the shirt will prevent button snag and permit cheap plastic buttons. The shirt has a simple square-cut tail or bottom with short side vents. This permits normal wear tucked inside the trousers and it can be worn loosely outside in extreme heat. The sleeves are conventional, tapered and cuffed, with one cuff button. In warm weather the sleeves are simply rolled up to the elbow.

This shirt is very similar in cut to the popular and proven sport shirts that are probably the most sensible items to join the male wardrobe in recent decades.

The Summer Field trousers are quite conventional. In fact they are almost identical to the present Summer Service khaki trousers except they don't have the high crotch and tight seat that have been the curse of QM trousers for years. One large grenade and rations pocket might be added to the right leg (in a position accessible to a prone rifleman). Otherwise these trousers are quite normal and shouldn't embarrass a marine donned in them if his best girl happens to see him at work.

For field wear all combat trousers should be closed and protected at the bottom. The drawstring and sock combination do not keep out dirt, mud, and insects. Nor is the old fashioned legging a proper item. Our British and U. S. Army friends have two good solutions. The short, easily packed, British canvas gaitor, and the American combat boot are proven and sensible items. The Marine Corps needs one or the other.

For headgear with the Summer Field Uniform FMF ground combat troops rarely need anything in addition to the helmet, helmet liner, and a garrison cap stowed in a pocket. For the other units who have need of a cap with a sun visor it is suggested that a Marine green cap of cotton cord or gabardine, patterned after a popular type of golf and sailing cap, would be more presentable than the current shapeless affair. Light weight ear flaps could easily be a part of such a cap. A detachable poloroid visor would be very handy.

This uniform, it is believed, has all of the advantages of the one proposed by Lt Schwaneke plus being a bit better looking. Also not having so many gussets, buttons, and snaps it would be cheaper to manufacture. It can be worn just as well with-

out the shirt in hot climate and can be buttoned up in cool weather. However, no cotton uniform is warm by itself in cold weather. Layers of wool must be added under this clothing if it is to be worn in cold climates.

Like Lt Schwaneke, it isn't claimed that this suggested uniform is the last word or the final answer in satisfying the current uniform needs of the Marine Corps. But certainly most marines will agree that any change from the present utility clothing would be an improvement.

James A. Donovan, Jr
Major, USMC

Reading Proficiency . . .

Dear Sir:

Since reading Col Taxis' article *So You Don't Have Time to Read?* in the December, 1948 issue of the Gazette, I have been watching with interest the remedial reading instruction being conducted for students of The Armored School here at Fort Knox, Kentucky. Using five new types of testing and practice equipment, the Officers' Advanced Course of some 132 student officers (including two marines) has just completed the 30 hour course of remedial reading instruction, the results of which demonstrate clearly that reading speed can be materially increased without loss of comprehension.

Results of tests given during this instruction to determine rate of comprehension of reading indicate that the student officers averaged an 83 per cent gain in reading rate with an eight per cent increase in comprehension. The median reading rate for the class before instruction was 270 (words per minute) while at the completion of the training the median reading rate was 494 words per minute with 78 per cent comprehension. The final median reading rate of 494 words per minute is perhaps not an absolutely true picture of the class' reading rate since the final reading rate on the "reading rate controller," a device for forcing the subject to read faster, was 720 words per minute.

Other interesting findings include:

(a) Before instruction, the average student made 35.5 looks or fixations per 50 words, or a recognition span of 1.41 words; after training he made 26.5 fixations per 50 words, or a recognition span of 1.88 words.

(b) The average student achieved a 50 per cent decrease in the number of regressive eye movements while reading.

(c) There apparently is no significant relationship between the student's age and his progress in remedial reading training.

(d) A majority of students expressed a belief that the training had improved their reading ability.

It is my suggestion that the Marine Corps Schools consider the inclusion of remedial reading instruction in its curriculum in order that marines may become more competent to read efficiently the numerous publications and periodicals to which we are exposed. Apparently, we are never too old to learn how to improve our reading ability, and the time saved can be well used elsewhere.

F. A. Durand
Major, USMC

Speaking Up . . .

Dear Sir:

A bow in the direction of Capt Blossy for his excellent article, *Less Stammer and More Finesse* in the February issue of the Gazette. The Marine Corps Schools has made long strides forward in the last few years in the field of public speaking. Not only must every instructor attend the Instructor's Orientation Course but he is periodically inspected and critiqued to insure that his manner of presentation is not below the minimum standard or is improved. In addition, each student class receives instruction in Military Instruction and Public Speaking and each student is required to "perform" on the platform.

I don't write to the Gazette often so would also like to add at this time that the number of NCOs who are offering comments to the "Message Center" should be noted. This infers a rather sizeable group of enlisted readers, which is certainly a healthy sign for the Corps.

A. L. Bowser, Jr
LtCol, USMC

Ed: At the present time there are nearly five Regular enlisted subscribers for every Regular officer subscriber.

Dear Sir:

The necessity of public-speaking training for all officers as advocated in the article entitled, *Less Stammer and More Finesse*, is indeed of paramount interest. I appreciate this necessity, but I feel that we should go even further into this Corps-wide need.

It would seem a step forward where we adopt as a requisite of basic knowledge and continual training for all commissioned and non-commissioned officers the ability to *instruct*. Public speaking could well be a requirement of the training in "How to Instruct."

In our military progress are we taking too much for granted? The Marine Corps in peace and war is faced with the responsibility of training untrained men well, but quickly. We assume that all of us are qualified to impart effectively knowledge to others, but we are mistaken. Even in our best schools, and surely in our routine duties how many of us have been bored by poor instruction and thoroughly interested in effective instruction? The excellent instruction has been a minimum.

Good instruction requires a complete knowledge of the subject to be presented, the proper use of the technique of teaching including articulate speech (public speaking), and the knowledge of what training aids are available and how to use them. We do have pamphlets as guides in instruction, namely:

Instructors' Handbook (MCS 2-6),
Manual for Navy Instructions (NAV PERS 16103),
Army Instruction (TM 21-250),
Training Aids Manual (NAV PERS 1300), and
How to Use Training Aids (NAV PERS 12,500).

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Message Center

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"How To Instruct" should be included in the curriculum for the Basic School, the Amphibious Warfare Schools, and should be as fundamentally accepted in training as the study of the M1 Rifle. It is to be noted that the Instructors' Orientation Course conducted at Marine Corps Schools is considered excellent but inadequate.

E. F. CARNEY, JR.
Major, USMC

DEAR SIR:

Congratulations to Capt Henry J. Blossy on his *Less Stammer and More Finesse*. If we are to believe that the article which appeared in the same issue (February) entitled *Public Relations for Every Marine* is of any importance at all, we must also believe, with Capt Blossy, that effective public relations, like charity, begins at home, and it should behoove every Marine officer to learn to sell not only himself, but also his branch of the service in matters of appearance, action, and *speech*.

Realizing the importance of speech-making and their own deficiencies in that department, a group of officers at Marine Corps Air Station, El Toro, affiliated themselves with an organization dedicated to better speech. Toastmasters International provides the framework and the instructional material for a painless approach to the problem.

The marines are doing the rest, and the results are found to be immediate, lasting and salutary in every respect.

For the information of Capt Blossy and others who might be interested in improving themselves as the El Toro Toastmasters are doing, Toastmasters International Headquarters, 1104 West 8th Street, Santa Ana, California, will forward information upon request.

F. H. SMYTH
Major, USMC

Three-handed Platoon Leader . . .

DEAR SIR:

In the January Message Center, WO S. A. Nowak states that the SCR 536 or "Handy Talkie" is no burden to the platoon leader carrying a carbine because of its small size and weight.

It is here that I believe that Mr Nowak has missed Lt

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Dolan's point. The burden of the SCR 536 does not lie in its size and weight but in the fact that it does occupy the use of one hand. This leaves only one hand for the operation of the carbine which is a weapon designed for the use of two hands. It stands to reason then that unless a platoon leader has three hands he should be able to use a pistol more effectively.

EUGENE T. DOLAN
Midshipman, USNR

The Indestructible *Essex* . . .

DEAR SIR:

I consider it an honor to have been able to contribute a note of sufficient interest to warrant its appearance in the "Message Center" of the GAZETTE. In regard to the accompanying editorial note, however, may I say that the engagement to which you refer, while most disastrous, was by no means the end of the little gunboat, but only a prelude to a long, lively and successful career?

Although disabled in the attack on Fort Henry, and suffering a grievous and disproportionate casualty list, which included her commander among the critically wounded, this was not the end of either Porter or the *Essex*, nor of their intimate association. The Commodore was totally blinded as the result of his burns, but insisted on remaining with his ship to supervise her reconstruction. Within four months, Porter having recovered his sight and the *Essex* having been almost entirely rebuilt, with many improvements in armor and armament, both were ready for action again, and had the honor of defeating and sinking the Confederate Ram *Arkansas*.

The *Essex* remained in service throughout the entire war, and was finally sold at public auction in 1865.

DOROTHY F. MAYHEW
Librarian

ED: Miss Mayhew is almost right. The *Arkansas* fought off the *Essex* (and the rest of the Union Mississippi fleet), was scuttled and burned by her own crew when her makeshift engines failed her completely.

Misogynist . . .

DEAR SIR:

Being a constant reader of your magazine, I wish to help a fellow reader. Lt E. D. Johnson wants to know what the Marine Corps wants of the WR in the future.

After a quick look into the history of the WR, which the Lieutenant so subtly wishes us to forget (the Lieutenant may have her reasons, that I don't know), I reach the conclusion:

During the war, the primary purpose of the WR was to relieve a marine to fight. Now that we do not have a war, and the Marine Corps, like the rest of the armed forces, are cutting personnel, there doesn't seem to be a peacetime need for the Women's Reserve.

Best wishes and a short future to the Women's Reserve.

JOHN O. LAHM
Sergeant, USMC

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Air Transportability in the Marine Corps

By LtCol Ormond R. Simpson

PART I

"BE PREPARED TO INITIATE AIR MOVEMENT OF EIGHTH marines to Hornpipe within 72 hours!" . . . You are Executive Officer of the 8th Marines. This move to Hornpipe is not unexpected. For two weeks you have been preparing to make this move—by sea. It is an old story to you. You made many such moves in amphibious shipping during World War II. But now it appears that the 8th Marines will move by air. Do you know what such a move entails? Do you know what will be expected of you? You should; it's part of your job as an officer in the present day Marine Corps.

People no longer ask whether the airplane is here to stay. But we are only now beginning to appreciate in true perspective the potentialities of the aircraft as a medium for transporting troops, equipment, and supplies. Any Marine field unit must always be prepared to move —any time, anywhere. To this we add "by any means." In the past we expected to and did move by marching, by ship, by truck, and occasionally by rail. Now we must be prepared to move by air.

The Commandant of the Marine Corps emphasized this point in September 1947 in a directive to senior field commanders on the subject of air transportation of troops. This directive required the development of operating procedures and logistics data for the air transport of tactical units of both ground and air commands within the Fleet Marine Forces.

This does not represent any radical shift in Marine Corps doctrine. It is a continuing responsibility of the Marine Corps to be prepared in both peace and war to move a force to a foreign shore rapidly in support of the fleet. The primary means of moving such a force, from the Marine Corps point of view, remains the amphibious shipping of the Navy. We now recognize, however, that under certain conditions, the most rapid means of moving a relatively small and lightly equipped force will be

Any Marine field unit must always be prepared to move—anytime, anywhere. This includes by air.

by air transport. By "small" we mean a force the size of a BLT or possibly an RCT. By "lightly equipped" we mean with no vehicle larger than a ¼-ton truck or jeep and no weapon larger than a 105mm howitzer.

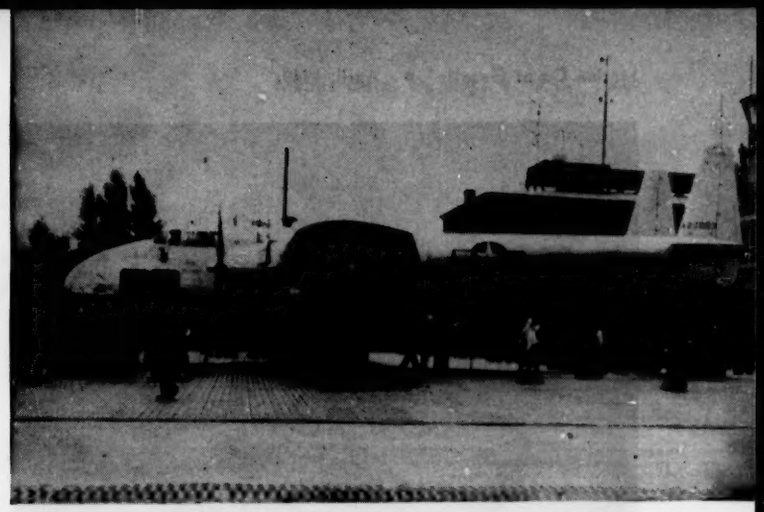
What does this mean to Marine officers? It means that, to be professionally qualified in the present day Marine Corps, every officer should be as familiar with the procedures and techniques involved in moving his unit by air as he is with those relating to movement by amphibious shipping.

Before considering the things that a Marine officer should know about air transportability it may be well to define some of the terms. An air-transportable unit is one which is capable of being transported by air. That does not necessarily mean that every item of equipment must be suitable for air transport. It does mean that it should be possible and practicable to transport by air sufficient of the organic equipment to permit the unit to carry out its primary mission at the destination at least for a limited period of time. An air-transportable Marine unit should not be confused with what is commonly accepted as an airborne unit. From our viewpoint, the transport aircraft should be considered simply another means of moving our personnel, supplies and equipment from one place to another. In this respect it is in the same category as a ship, a truck, or a railway car.

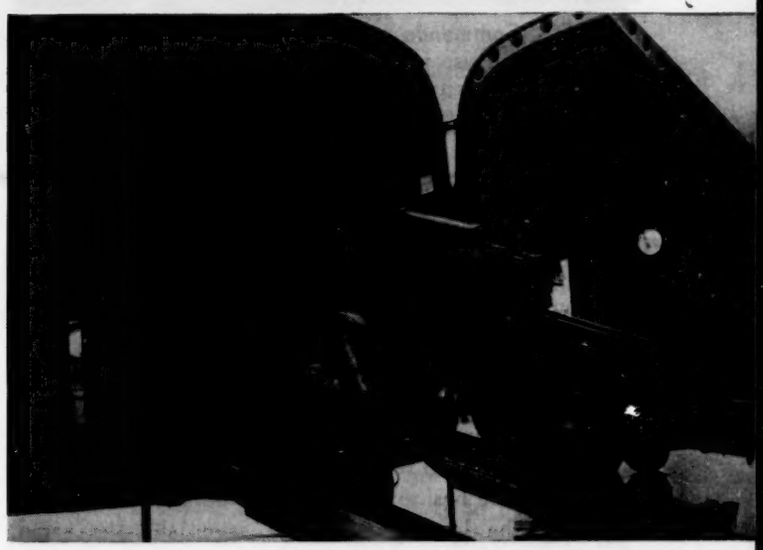
It would be misleading to look upon air movement of Marine ground units as something entirely new and different from any thing we have done before. Actually, a rather considerable number of Marine troops have already been moved by air. Furthermore, it will be found that movement by air is, in many ways, similar to movement by ship with which we are already quite familiar. Most of the basic principles are the same though their application varies. Air movement is simply another form of troop movement.

For purposes of discussion, air movement can be divided onto two general categories. In a tactical air movement, the troops actually enter battle from the air. When troops are air transported into battle, they must "come out fighting." Tactical considerations are of primary importance in planning the loading. This type of loading is similar to combat loading in amphibious operations. It is conceivable that the Marine Corps might reinforce a beachhead or a besieged garrison by means of a tactical air movement in which the troops are "air-landed."

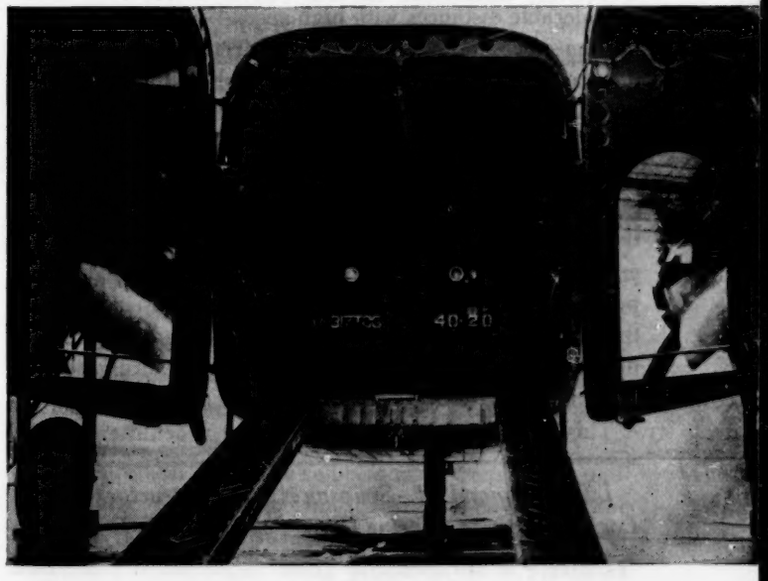
An administrative air movement is a simple movement by air of personnel, equipment and supplies from one point to another. The troops involved are not expected to be prepared to enter battle and tactical con-



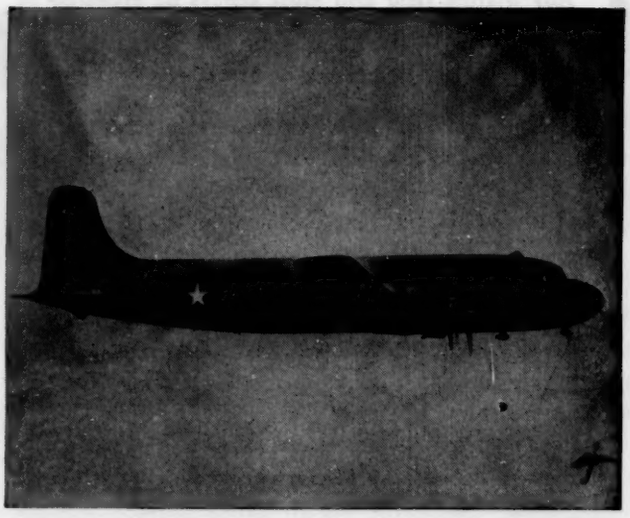
Fairchild C-82 "Packet." If the situation dictated their use, the Joint Chief of Staff could issue directives for the Air Force to provide the air transportation.



Above: 105mm howitzer being loaded into C-82 cargo compartment. **Below:** ¾ ton weapons carrier stands in C-82 compartment. Carrier can be moved down ramp.



The R5C "Commando" was workhorse of the Pacific war and is still in use in some Marine transport squadrons. This aircraft has twice the range of the R4D but is now considered obsolete and is no longer being procured.



The R5D is military version of Douglas 4-engine "Skymaster." Used extensively by the NATS and ATC during WW II, this plane is still in service with commercial airlines and is workhorse of Berlin Airlift.

siderations are of secondary importance to the utilization of the available payload. This type of loading parallels that employed in "convoy," "unit," or even "commercial" ship loading.

If it becomes necessary to move a BLT from Guam to Tsingtao by air, the move would probably be classed as an administrative one though it is not difficult to imagine a situation in which it would become a tactical air move. Both types, the basic principles involved in planning and executing the loading would be essentially the same though considerations relating to priority of weapons and ammunition would differ.

If this is what air transportability means to the Marine Corps—a means of moving relatively small units over considerable distances with high speed—what then should Marine officers know about the subject? It would seem that, as a minimum, Marine officers should have a general knowledge of the following: (1) the types and designations of transport aircraft which are likely to be used for the air movement of Marine units; (2) the general cargo characteristics of these aircraft including the largest items of equipment that can be loaded; (3) a general understanding of the principles of loading transport aircraft; (4) the division of responsibilities between the air unit providing the transportation and the ground unit being transported in planning and executing an air movement.

This article does not purport to be a definite treatise on air transportability or to include all the information that a Marine officer should have on the subject. On the contrary, it is proposed to discuss the subject only in a general way and to indicate the points which are of particular significance to troop officers.

A GOOD STARTING POINT for any discussion of air transportability in the Marine Corps is with the types of transport aircraft which are available to use in the air movement of Marine units. The general trend in transport aircraft design is continually toward larger aircraft with greater increased payload. This trend is reflected in press releases which announce from time to time construction or flight testing of some new model which will carry an unheard-of cargo load or an almost unbelievable number of troops. Any consideration of air transportability based on these new and future types except by long range staff planners is misleading. The significant point to remember is that when a new aircraft is announced, there is generally one—the prototype—in existence. It may have taken several years to produce this pilot model —it may be a long while before the new aircraft are available in sufficient numbers to make troop movements of any substantial size. It is possible, though certainly most unlikely, that any of these new giants transports, while still in the testing and experimental stage, would be used for air movement of troops. In such an improbable situation, it will certainly be unnecessary for the troop officers involved to be familiar with the cargo characteristics of the aircraft. Every detail of the planning and execution of the loading would undoubtedly be handled by the air unit charged with operating the

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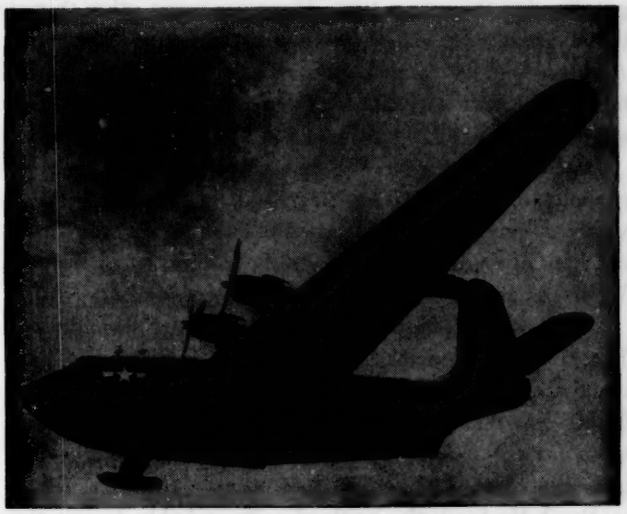
LtCol Ormond R. Simpson is an instructor in the Logistics Section, Marine Corps Schools. This is his first appearance in the GAZETTE.



The Martin "MARS" is a 4-engine personnel transport. While the "MARS" has a satisfactory payload and can carry equipment the size of a jeep, it is difficult to load without special equipment. Speed is not great.

Artist's conception of C-124A. This Douglas 4-engine aircraft is designed to carry bulldozers, field guns, tanks, fully loaded vehicles, or 222 fully equipped combat troops. Nose ramp will make loading easy job.

aircraft. Such aircraft of the future are not of concern to the average Marine officer until and if they are available in sufficient numbers to be considered as primary air transport for troops, equipment and supplies.

So, for the time being at least, we can check off, as far as air transportability in the Marine Corps is concerned, the Hughes "Hercules" and other new outsize transports which are in the design and testing stage. Instead, we should look at the air transports which are "in being" today—the ones that would be used if a Marine BLT or RCT were to be moved by air tomorrow morning.

As Marines, we might turn first to seaplanes. Here the picture is not very bright. With the exception of the Martin "MARS," we do not have large seaplanes designed specifically for the air transport of personnel and material. The twin-engine Martin "Mariner"—the PBM's—are presumably still available in considerable numbers. These aircraft were used effectively by NATS to transport very small groups of personnel, but the aircraft were not designed for either passenger or cargo transport. The 4-engine PB2Y2s saw some service as personnel carriers, but here again is an aircraft designed basically as a patrol bomber for long range missions. It is not a satisfactory troop carrier. The MARS was put into service toward the end of the war on the San Francisco—Honolulu run. The five aircraft of this basic design are in service now on this same route carrying passengers and high priority cargo. The MARS is an efficient personnel carrier though its speed is not great. It currently is carrying an average of some 50 or more passengers on the 2200 mile flight between the West Coast and the Hawaiian Islands. While it has a satisfactory payload and can carry equipment the size of a jeep, it is difficult to load without special equipment. We could move a considerable number of troops and their organic equipment if all five of the MARS type aircraft were made available, but to move a battalion in one lift, at least twice or three times that many would be required.

If the seaplane field is limited at present, what about land planes? In particular, what are the land planes which are available currently and likely to be available in the next two or three years in significant numbers for troop movements? The land plane field actually narrows to two basic types—the R5D (C-54) and the C-82. Such a statement immediately provokes two questions: "What about the Douglas (R4D) and the Commando (R5C)?", and "Since when did Marines start moving about in C-82s which are assigned to Air Force Troop Carrier commands?"

The R4D (USAF C-47) is an excellent and thoroughly reliable airplane within its limitations. It was certainly the mainstay of air transport in the war just as, under the designation of DC-3, it was the mainstay of commercial airlines for ten years. But the R4D is a 1934 airplane and does not meet 1948 requirements. Many are still in use as utility aircraft but they are no longer being manufactured and spare parts are limited. They have been superseded by larger aircraft with greater payload and longer range. To a lesser degree the story of the R5C—Commando (USAF C-46) is the same. Commandos are still in use in some Marine transport squadrons. These aircraft have almost twice the payload of the R4D and a longer range. But the R5C is considered obsolete and is no longer being procured. It is presumed

that they will be replaced by more efficient aircraft as rapidly as funds permit.

As far as the question of why a marine should be interested in the C-82, an aircraft flown exclusively by the Air Force, there seems to be no reason why, if the situation dictated their use, marines would not fit in the bucket seats of these aircraft as readily as any other combat passengers. In other words, if the Joint Chiefs of Staff should direct the air movement of a Marine BLT or RCT and sufficient naval air transport were not available, it seems reasonable to suppose that directives would be issued for the Air Force to provide the air transport. And the primary aircraft of the Air Force Troop Carrier elements is the C-82. Furthermore, it was recently announced that Marine aviation units would eventually receive a limited number of C-119, the improved version of the C-82. And so it appears that the two land planes which are currently available and which will be available for troop movements in the near future are the R5D and C-82 types.

THE 4-ENGINE DOUGLAS "SKYMASTER" in its various modifications is used by the Navy, Marine Corps, Air Force, and commercial air lines and is designated differently by each activity. The Navy and Marine Corps call it an R5D, the Air Force calls it a C-54, and the airlines a DC-4. The basic airplane is the same in each case. This type was used extensively by NATS and ATC during the war and on commercial airlines it has largely replaced the DC-3 for the longer flights. It is used almost exclusively by the USAF in the "Berlin air-lift."

From the standpoint of air transportability in the Marine Corps, what are the things that we should know about the R5D? Certainly not its technical flight characteristics. We are concerned with what should be the common knowledge of all or the great majority of Marine officers. We are definitely not concerned with the considerable field of technical knowledge which need be spanned only by the pilots, engineers, staff officers and other personnel of the air units who plan and execute the flights of these aircraft. We are no more concerned, for example, with the manifold pressure required for take-off than we are with the number of propellor revolutions required for an APA to make 14 knots.

The logical question that comes to the mind of a troop or staff officer whose units is to be transported in this aircraft is "What will it carry—how many people and how much gear can we load into it?" As soon as we pose this question we are in deep water. If you ask a transport pilot or other officer of an air transport unit how much the R5D will carry, he will probably answer "It depends." You will find that it depends on a multitude of factors—the length of flight, the weather along the route, whether re-fueling will be possible at the destination or whether the aircraft will have to carry sufficient gasoline for the return trip. There are many other things that enter into the determination of the figure "payload." And payload is what interests us primarily. It is the figure that tells us exactly how much weight (both passengers and material) we can put aboard.

Payload for an aircraft is not as simple as the tonnage capacity for a ship. The latter figure is relatively static whereas payload is a variable. Payload is the load capacity of an aircraft for a certain specific set of factors. When the factors change, so does the payload.

The payload of an R5D varies between wide limits. The announced payload figure for the C-54 on the Berlin air-lift is 10 tons or 20,000 lbs. This is for a short flight—less than 250 miles—and it approaches the maximum for the C-54 (or R5D). When the flight distance is increased to 2200 miles, for example (San Francisco to Pearl Harbor) the payload will probably be on the order of 5 tons or 10,000 lbs. In every case, the computation of the payload for a particular flight is the responsibility of the air unit. In an air movement of troops, the air unit will compute the payload making appropriate allowance for all pertinent factors. That figure is the basis for all load planning by the troop unit to be moved. For a round figure, the payload of the R5D can be considered as 10,000 lbs. for medium to long range and 17,500 lbs for short range. But it must always be remembered that these figures are indicative of the payload of this type aircraft and not as applicable to a specific aircraft on a specific flight.

Let's look at the cargo compartment or main cabin of the R5D and see what will be available to us for this payload. The compartment is 43′ long and 8½′ wide at the deck line. There is about 7½′ of overhead clearance in the center but it tapers sharply toward the sides. The cargo door is located at the rear on the left or port side. This door is 8′ wide and 5½′ high. The size of this door is one of the limiting factors on the size of the individual items of equipment that can be loaded. There are normally 35—40 seats of the conventional canvas or bucket types. This does not mean, of course, that the capacity is only 35 passengers since 50 or more can easily be carried within the limits of the normal payload. Fittings are provided for 36 litters to be employed when the aircraft is used for evacuation.

The jeep or ¼-ton truck is the largest vehicle that can normally be loaded without some disassembly. The ¾-ton truck and the 1½-ton weapons carrier can be loaded if they are partially stripped. One of the difficulties in loading is that the bottom sill of the cargo door is 9′ from the ground. Also the cargo door is parallel to the left side of the cargo compartment and this means that vehicles have to be turned through almost 90° in order to be moved forward in the cargo compartment. This complicates and slows down the loading and unloading process. Ramps are used for loading ve-

hicles. Jeeps can be loaded with a ¼-ton trailer in tow. It is also possible to load the 105mm howitzer though of course the standard prime mover for this weapon cannot be carried.

Generally speaking, it is possible to load any equipment and supplies which can be handled through the cargo door. Practically, this means anything the size of a jeep or smaller. It includes all types of supplies and practically the entire list of basic weapons of infantry units. Some aids must be provided to boost these equipment loads up to the cargo door 9′ from the ground. Fork lift trucks are excellent but are not always readily available. Loads that can be man-handled can usually be loaded from the body of a regular 2½-ton cargo truck which is backed up to the aircraft.

Here are some sample loads of combat personnel and equipment for the R5D under varying payloads:

No. 1
1 ¼-ton truck (jeep)
1 ¼-ton trailer (loaded)
40 men
Total weight—12,203 lbs.

No. 2
2 1½-ton 6x6 weapons carriers (stripped)
7 men
Total weight—14,890 lbs.

No. 3
4 ¼-ton trucks
19 men
Total weight—13,992 lbs.

No. 4
1 ¾-ton truck (stripped)
1 1-ton trailer (loaded)
21 men
1500 lbs.—miscellaneous equipment
Total weight—14,970 lbs.

A BRIEF ANALYSIS of these load characteristics indicates that the Marine infantry battalion is air transportable in R5D aircraft. When the question is asked "How many R5D aircraft will it take to move a battalion by air?" we find that we are back to payload again. But it is a simple problem in arithmetic if we assume a payload of 10,000, 12,500, or 15,000 lbs and know the weight of personnel, equipment and supplies. The weight of equipment and supplies should be readily available in tonnage data files of the unit or in standard reference texts. As a general planning factor, 220 lbs can be used as the weight of the individual marine together with his weapon, ammunition, rations, and combat gear. This figure can generally be reduced when detailed planning is started for a specific air move and the equipment and supplies to be carried by the individuals are known.

Let's look now at the C-82. Fairchild, the builder of this 2-engine transport calls it the "Packet." Almost everyone else calls it a "Flying Boxcar" for very obvious reasons. The aircraft has a high twin-boom tail assembly which permits the fuselage to be shaped like a rectangular box. This aircraft was specifically designed for the air transport of troops and equipment and, as a consequence, is much easier to load than other current types of transport aircraft.

There is no Navy or commercial equivalent for the C-82 since all the aircraft of this type are assigned to the Air Force. The USAF has assigned the great majority of its C-82s to troop carrier duty. A new version of the C-82 is the C-119 which has greatly improved performance characteristics. While it is somewhat larger, the cargo compartment has not been radically changed.

The specific payload of the C-82 for any given flight is, of course dependent on the same factors that influence the payload of the R5D. As a general planning figure 10,000—11,000 lbs is used.

The cargo compartment is a rectangular box 8′ wide and 8′ high and 38′ long. This is only slightly smaller than a standard railway boxcar. The clamshell doors which close the compartment at the rear can be swung open for loading, giving in effect a cargo hatch the size of the cross section of the compartment, 8′x8′. This is the largest cargo door or hatch of any transport aircraft currently available. In addition, the bottom sill is only 4′ from the ground for loading. Since the door is perpendicular to the long axis of the cargo compartment, loading of vehicles is "straight away" with no turning necessary after the vehicle is in the aircraft. Loading a truck into a C-82 is no more complicated than driving it on a grease ramp. Each aircraft is provided with ramps for vehicle loading. There normally are spaces for about 40 passengers. When used for evacuation, the C-82 can carry 34 litters.

From the standpoint of loading equipment, the C-82 is by far the best of the currently available transports. A 2½-ton 6x6 SWB truck stripped of its top bows can be loaded. Any item of equipment smaller than a 2½-ton truck such as 105mm howitzer, a 1½-ton truck or a jeep can be loaded without difficulty and without special loading equipment other than the ramps which are organic equipment for each aircraft.

Here are some sample loads for the C-82:

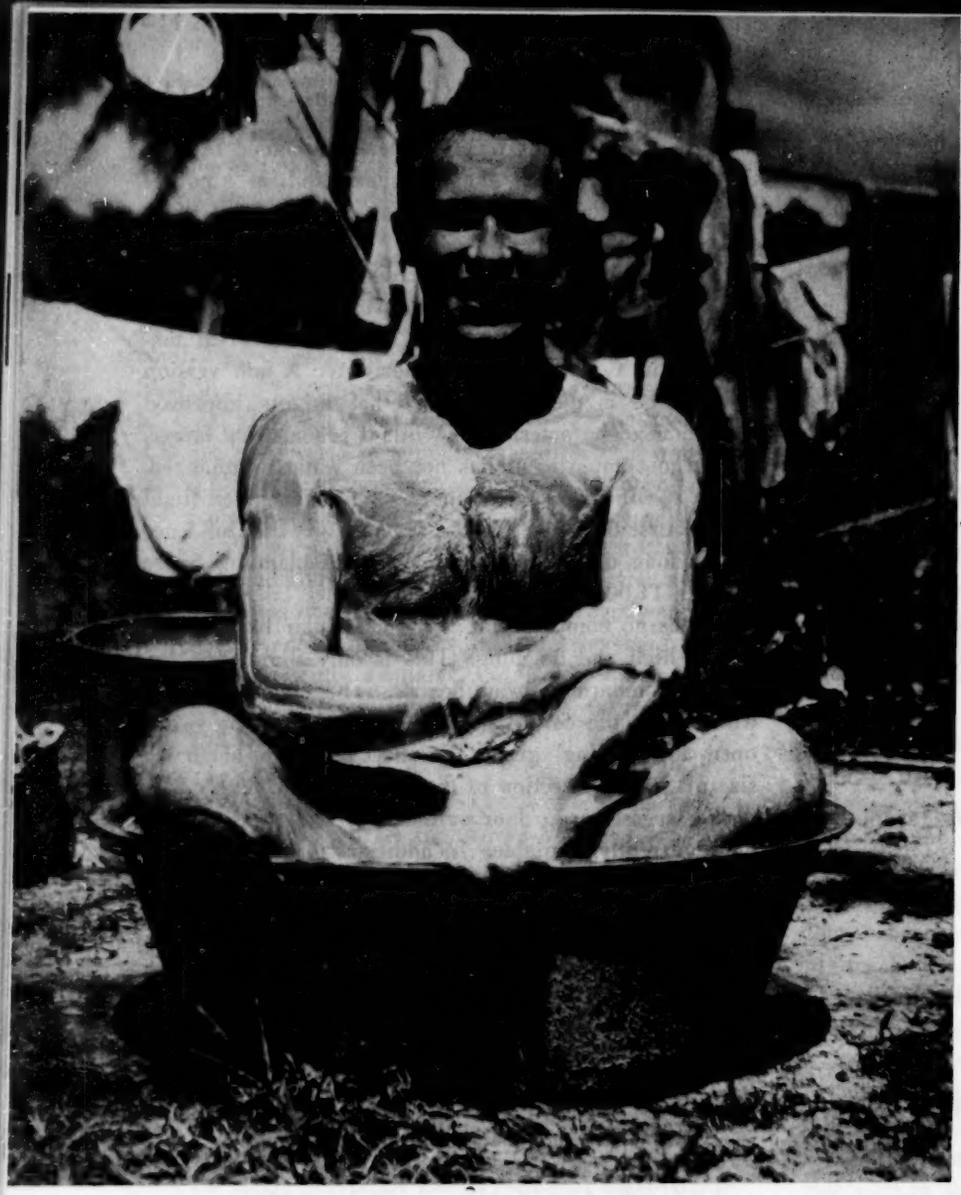
No. 1
1 2½-ton truck (stripped)
5 men
Total weight—10,980 lbs.

No. 2
1 1½-ton truck (loaded w/1000 lbs.)
1 ¼-ton truck
3 men
Total weight—10,788 lbs.

No. 3
2 ¼-ton trucks
24 men
Total weight—10,186 lbs.

No. 4
1 105mm howitzer
1 ¾-ton truck
2 men
Total weight—10,660 lbs.

to be concluded



This priceless tub was uncovered in the ruins of Agana, Guam. Other marines, less fortunate, were forced to use helmets.

KEEP IT CLEAN

IN THE SPRING OF 1942, SHORTLY AFTER WE ENTERED the war, an article written by a British officer who had been fighting in the Western Desert appeared in a national magazine. In it he stated "I'm not saying that a good tin opener will win the war, but it certainly will make things more comfortable for the individual who owns one" and he went on to describe the advantages of a tin can opened with an opener which left the sides smooth, as against one opened by means of the key affixed by the manufacturers which left a sharp, cutting edge. It turned out to be a good tip; simple but practical. A daily shower for every marine will not win a war either, but it will certainly make life more pleasant for the men who have to fight one.

By LtCol Henry Aplington, II

We provide the division with very fine wheeled shower units to furnish hot water showers for the troops, but the number of such units are very few in comparison with the number of men who have to use them; to get to all of the troops of the command, a schedule must be set to cover each unit. Maybe each battalion gets two or three showers a week. In the field in a cold climate where men don't particularly care, that is probably sufficient for health and comfort, but in a hot climate, a shower is a different matter. In the tropics, men are not concerned whether the water be hot or cold as long as they can come in from the field in the afternoon and get under a spray before chow. After a sweaty day of field problems or working parties, a shower is the

Showers for every marine may not win a war, but they will make life more pleasant for the man who has to fight one. During World War II, men begged or "borrowed" shower heads, pipe, gas drums, and other items to rig up a means of bathing

difference between existence and comparative luxury. As it is now, with our nice shower units distributed through the division camp (and here I am obviously talking about training areas; battle is another subject) the men of the battalion scheduled to take showers from 1630 to 1700 strip down to utilities, fall in the company streets, march through the dust for a half a mile to the engineer shower, get cleaned up, and march back through the dust to their camp where they arrive as dusty as they were when they left. The men not scheduled for the shower go to the nearest river or try to take a bath out of their helmet.

The 3d Division camp on Guadalcanal (where the Division lived for nearly a year) was a good example of what happens. When we first arrived from New Zealand, we took the troops in trucks to the Balasuma or the Metopona where troops and trucks washed together, and then we trucked them back through the Guadalcanal dust to the Cocoanut Grove. In a short time, officers started taking their scanty supply of whisky down to the Army at Lunga or Kearney Field or over to the Sea Bees and came back less the whisky but with a few shower heads; after the Division had been in that camp for a few months, every company had a shower of sorts where the men and officers could clean up after a day in the field. The type of shower heads ranged from the chrome model with a chain pull to water faucets over which perforated tin cans had been hung, but they were showers. The pipe was promoted from the engineers and the gas drums for the water from motor transport or from the galley. Frames were made of wood cut in the forests. A daily shower in that climate certainly improved the mental outlook of all hands.

ONCE I went to the G-4 and asked him why he had to promote the shower heads to give the men a bath and why we couldn't draw such obviously necessary items. The G-4 looked the matter up in the T/A and then, looking out at the camp in which we had already lived for eight months, told me that showers were provided as a part of base camp equipment but that, unfortunately, we were not living in a base camp. Shortly after that we went to Guam and after that operation was over, the Division set up another camp. How they worked the showers there I don't know; perhaps it was a base camp. For some 20 months in Samoa and the Solomons, however, the only showers the 3d Marines (Reinf) had were the ones promoted by their officers. Like the Britisher with his tin opener, I'm not saying that readily available showers would have won the war any quicker but they would certainly have improved the living conditions of the men in training to fight it. In every camp, base or otherwise, there is always a surplusage of gasoline drums to furnish the water reservoir. If there are no wells available or streams handy, every battalion has two 300 gallon water trailers and, particularly in the tropics, there are plenty of trees with which to build the frames and the duck boards. The only difficult part of the problem of rigging a shower is finding the fixtures.

Each company or equivalent unit in the Marine Corps should have what we can call a Shower Unit, Company or Battery. Provide for buying it out of the recreation fund or issue it on the T/A, it makes no difference as long as they have it. The unit would consist of:

10 shower heads of any commercial design.
1 2″ coupling for a 50 gallon gasoline drum.
1 6″ section of threaded 2″ pipe.
1 2″ elbow.
5 2″ sections of threaded 2″ pipe.
1 2″ T joint with two 2″ reducers.
4 2″ cross sections each with 1″ reducers.
10 2′ sections of threaded 1″ pipe.
10 1″ elbows.

All of this could fit into one chest about the size of a BAR chest, certainly no great strain on the U, P&T table for the unit. For added luxury add:

1 ½ HP, gas operated, 15 gal/min capy pump.

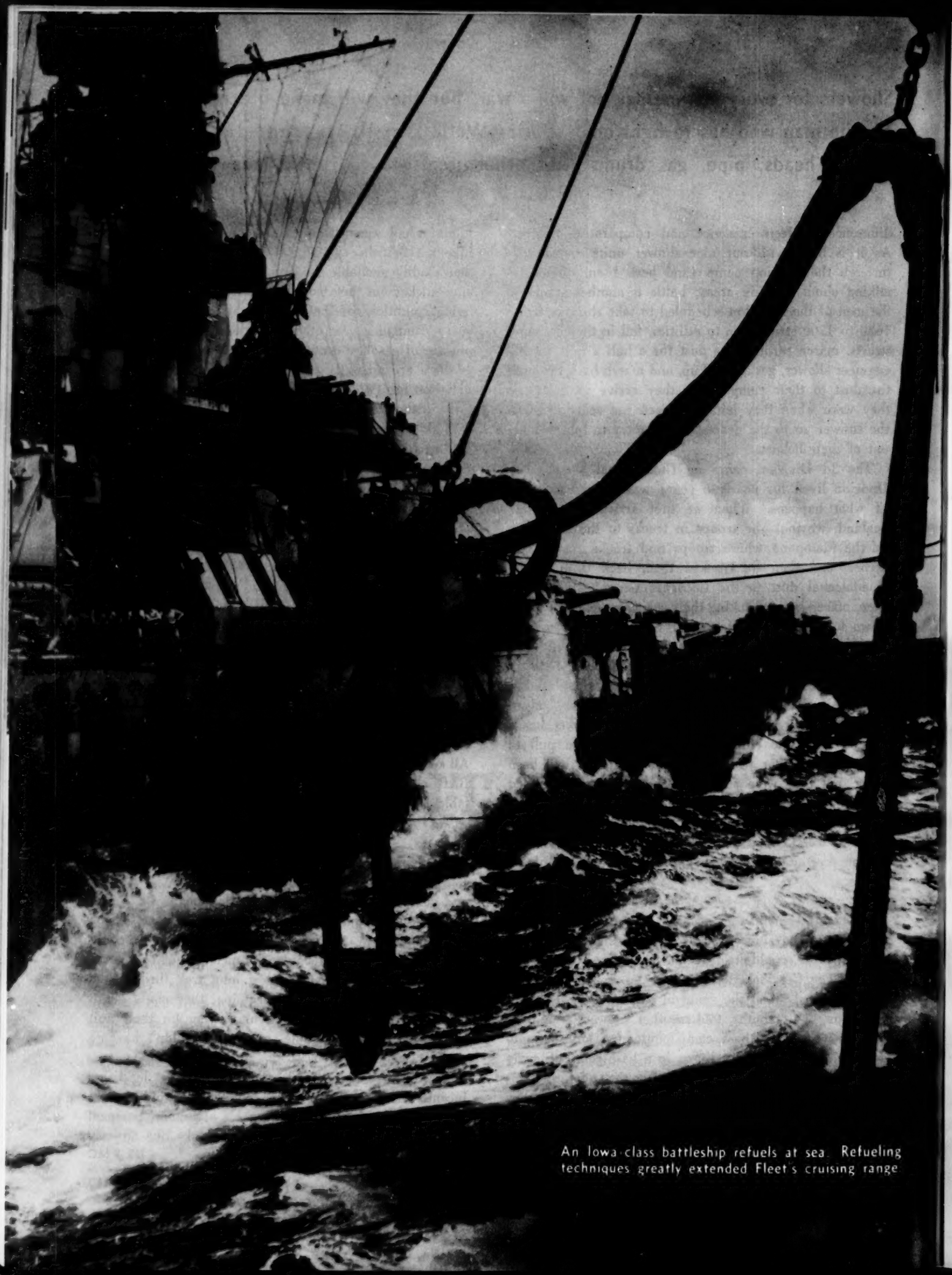
or

1 hand operated pump
2 25′ sections of rubber hose

and carry that in the same or another box.

With such a unit as standard field equipment for the Marine company, the company jacks of all trades could erect it in a matter of hours, the men and officers could be sure of a shower without a long trek through the mud or dust after a day of training, they could get it any time they needed it without waiting for their unit to come up on a schedule, and they wouldn't have to rush or wait.

It would improve morale and take away at least one incentive for the "borrowing" complex. It would assure all hands of that last remaining bit of luxury, personal choice, when troops are in camp; it looks like an easy way to Keep It Clean. USMC



An Iowa-class battleship refuels at sea. Refueling techniques greatly extended Fleet's cruising range.

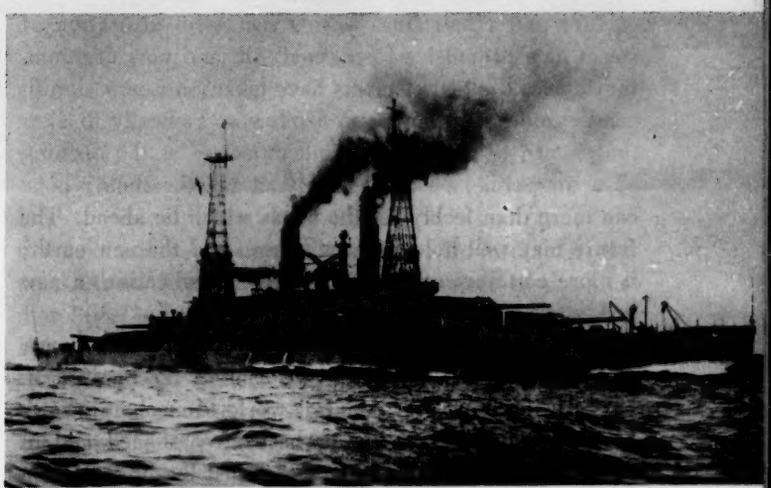
Sea Power in a Changing World

By Dr William E. Livezey

THE NAVAL ACTION OF DECEMBER 10, 1941, OFF THE coast of Malaya in the China Sea was dramatic evidence that sea power in the modern world was vastly different from sea power in former years. For on that day, Japanese bomber and torpedo planes quickly disposed of the only capital ships which mighty Britain had sent to the defense of the western Pacific. The limited assistance made available by the British Navy for action in this theatre indicated that these were days of global warfare. The sudden loss of the *Prince of Wales* and the *Repulse* by air action was tragic proof that naval warfare had become tri-dimensional.

Some military observers at once claimed that this naval engagement of December 10, 1941, sounded the death knell of the battleship and certain air enthusiasts went so far as to assert that air power had superseded sea power. Increased perspective and calmer judgment show these views to have been exaggerated. In the sudden collapse of Singapore and British Malaya, as in other campaigns and theatres of war, the basic interdependence of armed might was clearly demonstrated. Air power surely came to its own in World War II, but just as surely it did not relegate sea power to the land of the dodo bird. The magnitude of naval operations and the degree to which these operations contributed to the final victory were without parallel in history. Technological development in weapons, propulsion, armor, and ordnance had drastically altered the means by which military power, including sea power, exerted itself, but most certainly the influence of sea power upon history was again signally demonstrated.

Sea power has never been a constant. The navigators and explorers of the fifteenth and sixteenth centuries by



World War I Battleship *Michigan* was completed in 1909; armament included main battery of eight 12-inch guns.

World War II Battleship *South Dakota* is twice tonnage of *Michigan*, has nine 16-inch guns, twenty 5-inchers.

Part I: Air power came into its own during World War II, but it did not relegate sea power to the land of the dodo bird. Battleships provide the only guns that are sufficiently powerful and accurate enough to knock out land-gun emplacements

their two-fold discovery of a new world and a new route to the spice islands of an old world globalized sea power; they extended its scope beyond the Mediterranean Sea and the coastal waters of the continent of Europe. The pure and applied scientists in the nineteenth and twentieth centuries with equal truth have ushered in a new world. The impact of the industrial revolution has reached every aspect of life in every corner of the globe. The developments in communications, commerce, and finance have fused the several physical worlds which formerly existed into a single, closely-knit whole. In the century and a half since Watt's successful utilization of steam as a propulsive force, coal, oil, and now uranium, thorium, and allied elements have taken on a new significance. Indeed nuclear fission offers so radically to alter the pattern of life that we find ourselves at the opening of a new era. We are scarcely at the threshold; none can more than feebly see the vistas which lie ahead. The future may well hold the new heaven and the new earth; it more certainly offers, at the present indication, a new hell.

As the navigators and explorers globalized sea power so have the pure and applied scientists mechanized it. How has sea power fared in this world of mechanization? In what ways has sea power been strengthened and in what respects has it been circumscribed by modern technological developments? The answer cannot be wholly satisfactory, for it can be neither complete nor certain. Only a few of the developments which bear upon sea power can be suggested; and of these, some have been tried and tested with effects fairly known, while others are still so in the experimental stage as to leave much for speculation. Among the developments markedly affecting civil or military sea power, or both, occurring roughly within the century—and some within the decade—are the changes from sail to steam, from oak to iron, from shot to shell, from chemical explosion to include nuclear fission, from muzzle-loading smooth bore to breech-loading rifle, from semaphore to wireless, from human eye and ear to electronics, from surface vessels and actions to include sub- and super-marine crafts and modes of warfare. Furthermore, the ever enlarging scope of markets and raw materials, the development of synthetics, and the utilization on land of mobile steam and combustion engines have had very definite repercussions upon sea power.

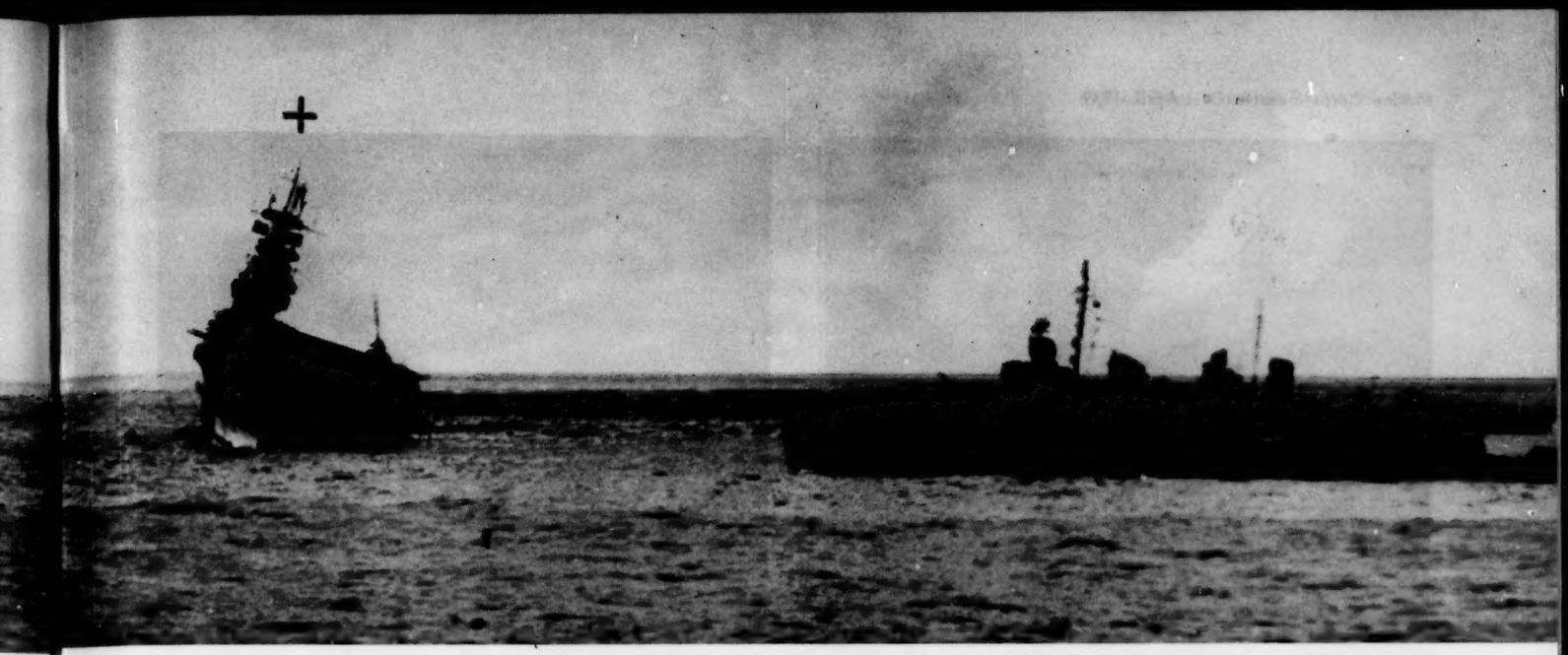
The *Yorktown* goes down. Many authorities regard the battle of Midway as turning point of the Pacific war. Aircraft carriers were all-important in our victory.

To understand sea power in today's changing world it is essential to consider briefly its nature, function, and purpose. From the point of view of its *nature*, sea power involves three major factors: first, the active sea tools of combatant ships, service force, and merchant marine; secondly, those elements of national wealth, such as natural and financial resources, industrial organization, technological development, and morale of the people, which combine to make up a nation's military potential; and thirdly, geographic foundations of position, sea lanes, and bases.

The *function* of sea power is to assist a nation to achieve strength and wealth in peace time and to gain the coveted command of the sea in war time. Ideally this command is secured by the elimination of the enemy fleet, but failing in that achievement, its neutralization is best accomplished by the blockade.

The *purpose* in securing the command of the sea is to

William E. Livezey, a native of Ohio, studied economics at Earlham College (Indiana) and received his M.A. degree in philosophy from Haverford College. Thereafter, on a Biddle Traveling Fellowship, he spent 15 months in nine European countries, with special study at L'Institut Universitaire de Hautes Etudes Internation, ales, at Geneva, Switzerland. He received his Ph.D. degree in history from Ohio State University, and is at the present time associate professor of history in the University of Oklahoma. His *Mahan on Sea Power* won for him the Dunning History Award for 1948.



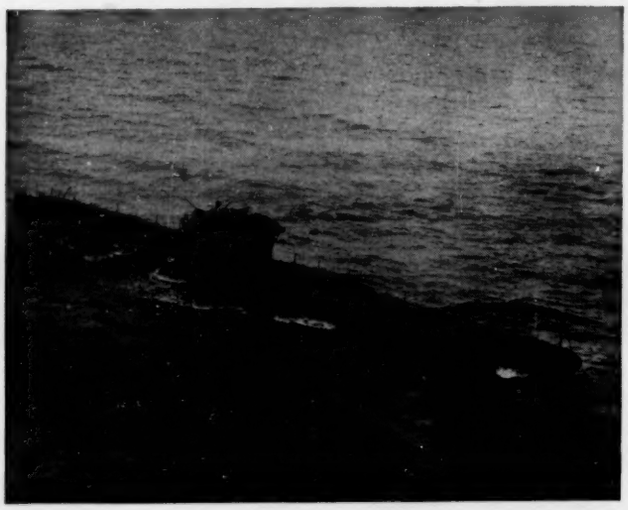
control both military and commercial sea-borne communications. In the first place, this control of sea-borne communication from the offensive point of view protects the movement by water of land and air forces and their supplies directly to hostile shores or to friendly shores from which they may more effectively engage the enemy. Defensively, in the same general category, control prevents the passage of enemy troops across the seas, thus safeguarding homeland and overseas territories from sea-invasion forces. In the second place, with the emphasis again first on the offensive, sea control denies the use of the sea to shipping which would aid the enemy. This denial has a threefold advantage: the restriction of the import of strategic raw materials or highly essential industrial goods; the prohibition of the export of items which definitely limits the funds available for the purchase of goods from contiguous or nearby neutrals; and the exertion of a very real and positive pressure upon neutrals to limit seriously their trade with the enemy. In the arsenal of economic warfare, naval blockade occupies a central and strategic position. Defensively, in the same general category, the control of seaborne communications permits and protects friendly shipping, again including import, export, and neutral goods.

Finally, sea control permits the navy as a mobile heavy artillery and aircraft base to provide the softening-up bombardment, the close cover for the landing, and the continued assistance to troops ashore yet operating near the coast.

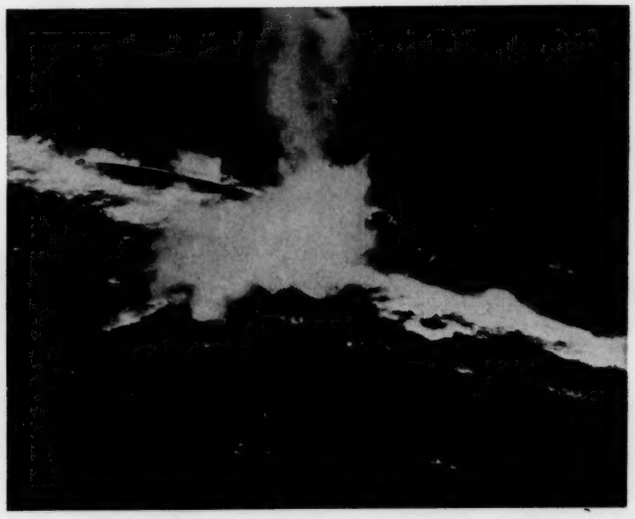
THE COMMAND OF THE SEA is a relative concept. The control has seldom if ever been complete. It is usually limited in both extent and duration. It is a goal to be sought rather than an achievement gained. A virtual command, even limited to areas of chief importance, is difficult of attainment. In neither of the World wars could the allies exert control in the Baltic; nor was the command not potentially at least in dispute in the post-Jutland days of World War I because of the German "fleet-in-being;" and although the United States and British navies held virtual command of the Atlantic in the latter years of World War II, the Germans still had surface vessels of threat and U-boats were off the American coasts at V-E day.

Modern developments in propulsion, armor, ordnance, and weapons intimately affect both the manner in which and the success with which sea power performs these vital historic functions of the command of the sea. In a consideration of the effects, the continued importance of the command at times may appear uppermost; at other times, the instruments or tools which are most likely to achieve the desired command will claim primacy.

As has been observed the command of the sea is obtained either by the destruction of the enemy fleet or by its blockade, historically the close blockade. Sail vessels could keep station before ports for long periods and such action contained the entire enemy fleet and made a strong covering fleet elsewhere unnecessary. As steam replaced sail, the importance of wind as a determinant of naval strategy and tactics dropped from the picture. With the use of naval aircraft, tactics are affected to the extent that the carrier must turn into the wind to launch and land planes. Machine propulsion gave certainty in movement and celerity in maneuver, but at the cost of range or endurance. Fuel limitations tethered the ship to its base, severely restricting range, propulsion was no longer a gift but a dearly-bought possession. The problem of fuel supply made the close blockade more difficult; the development of long-range artillery and the introduction of underwater warfare—the mine, torpedo, and submarine—made it obsolete. The Japanese blockade of Port Arthur in the Russo-Japanese War of 1904-05 was the last successful *close* blockade,



The U-977, sunk later in U. S. Navy torpedo tests. This 773-tonner was a counterpart of standard German submarine for patrols in Atlantic and Mediterranean.



A sure kill was this aerial torpedo hit on a German submarine by U. S. Navy bombers. Countermeasures are at least equal to present-day submarine capabilities.

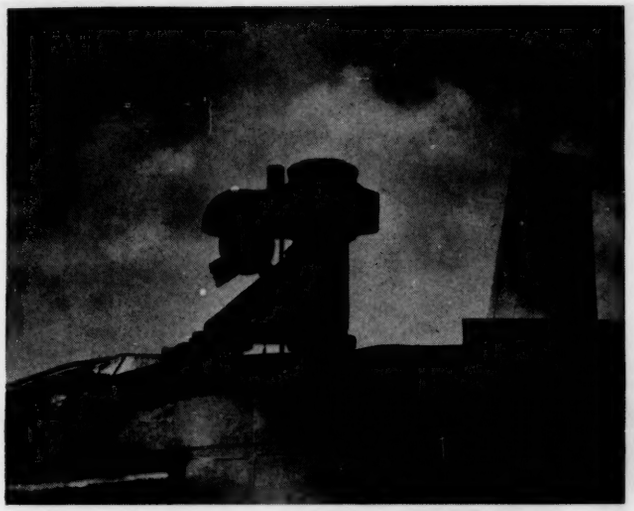
and in that instance, where even no submarines were present, the Japanese lost two of their six battleships to mines in a single day.

These statements on the eclipse or death of the *close* blockade must not be interpreted as even intimating that the blockade, in its subsequent modified form, has ceased to be an important, even decisive factor. The *distant* blockade, the modern method of containing an enemy fleet, however, is definitely less effective in certain respects than was the close blockade. Modern blockade consists of patrolling by air, surface, and sub-surface vessels those areas through which the enemy navy or marine must pass to reach its destination. This permits the inferior fleet considerable freedom of action with resultant control over larger areas in which troops and goods may be moved.

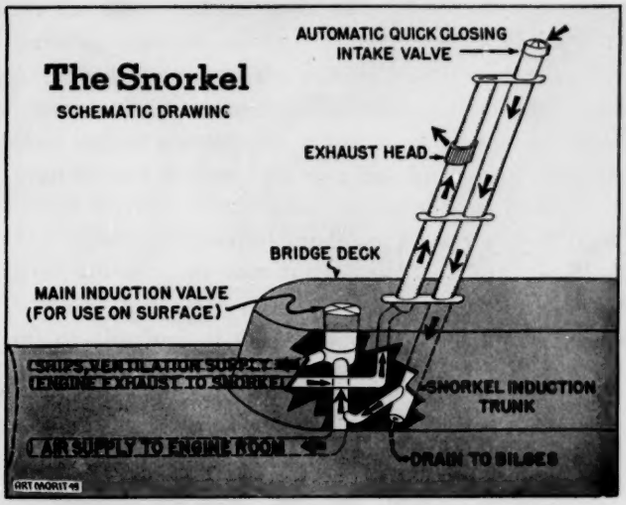
Beyond doubt the cessation of the continuous and close blockade has restricted an important function of the command of the sea. The effectiveness of the blockade has been further reduced by devices not associated with naval action; the Nazis and the Japanese, for example, ably utilized precautionary stockpiles, synthetic substitutes, and important resources from contiguous subjugated peoples. Certain developments, however, partially offset these limitations which invention and discovery have placed upon the importance of the blockade. Modern industry, demanding an ever-increasing quantity and variety of strategic raw materials, makes no nation self-sufficient, with consequent necessity for imports much increased over earlier times.

Nor is naval blockade the only weapon in depriving an enemy of vitally needed supplies. Economic means for achieving this purpose were highly developed and effectively employed in World War II in such actions as preclusive buying, blacklisting, navicerts, embargoes, and the like. Furthermore, strategic bombing, though aiming at virtual destruction rather than mere strangulation of economic life, may be broadly viewed as the military air counterpart to these economic weapons and to the naval blockade. With atomic explosives tremendously increasing the possible destruction of war potential in centers of productions, it appears that strategic bombing may supplement (and thereby partially circumscribe) the singularly decisive role previously enjoyed by the naval blockade, close or distant. However, in evaluating from present experience the importance of the modern distant naval blockade, the vital, even determining, contribution it made to the defeat of Germany in World War I and of Japan in World War II must be neither overlooked nor minimized.

The recourse usually taken by the inferior fleet to the blockade, close or distant, has been the destruction of enemy shipping. The commerce destruction, or *guerre de course* as it is frequently called, is engaged in by the side which fails to secure the command. The nation with command has no need for this method since enemy shipping, with the exception of blockade runners, has already been driven from the high seas. Commerce raiding creates many problems for nations which exercise command and might conceivably lead to victory. It has prolonged wars, but so far has failed to win them. This fact has not deterred powers from making the attempt. With the appearance of many of the major technological developments hope has risen in the hearts of the inferior sea powers that victory might at last be theirs. With the shift from sail to steam, the French hoped



Schnorkel or "Snorkel" is Dutch "breathing" device developed further by the Germans and now used by all navies. Above model was used on Nazi type XXI subs.



Principle of the "snorkel" is essentially the intake of fresh air through a quick-closing valve and the expulsion of the stale air through an exhaust head.

that the erstwhile superiority of the English capital-ship navy might be offset by French steam frigates functioning as commerce raiders. Their hopes were in vain.

The submarine has proved a much more serious instrument in its threat as a commerce destroyer seeking to wrest victory and command from the capital ship. The submarine can dive beneath the blockade in counter-attack. Naturally the side that has won out in surface action and is still maintaining her shipping is the victim.

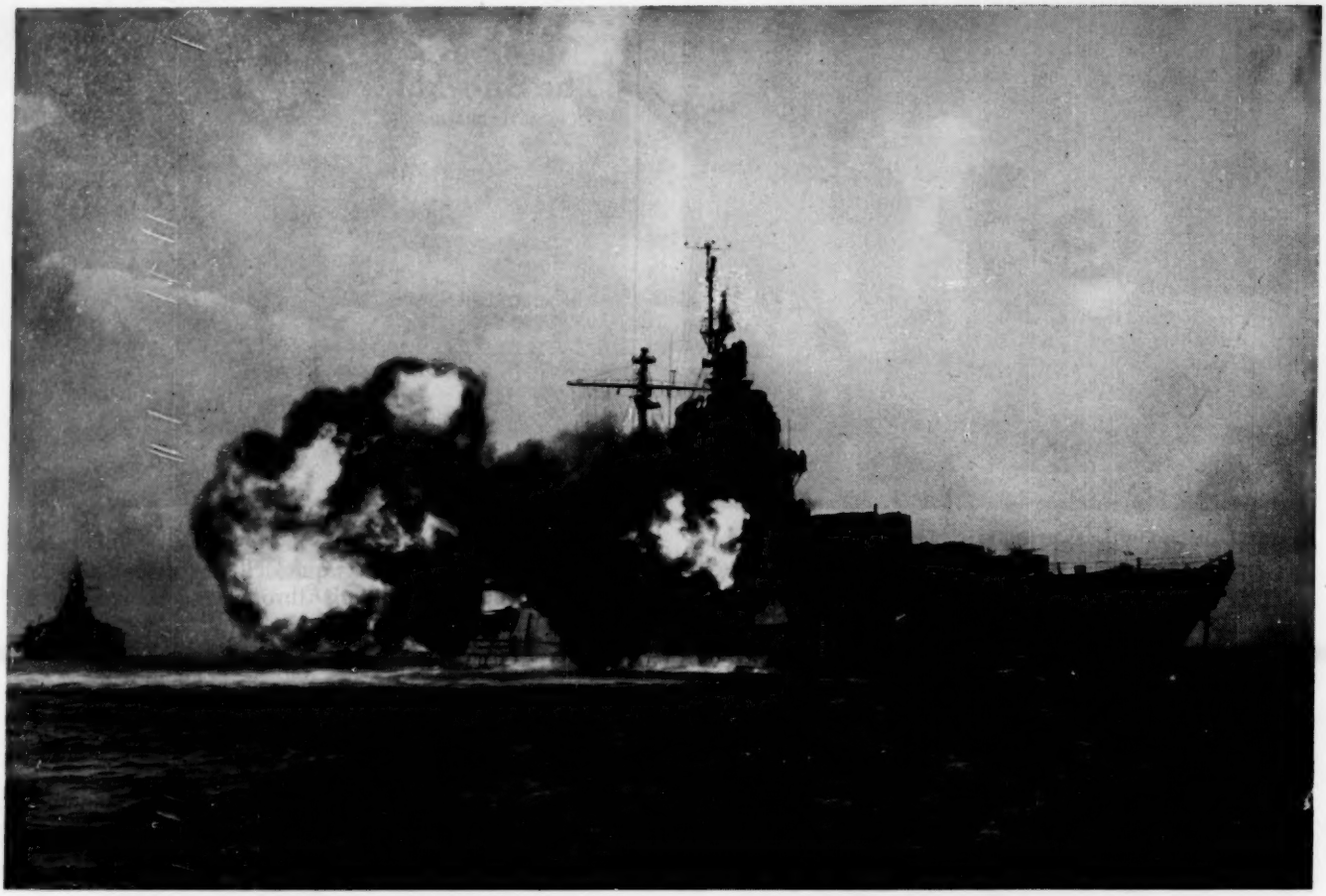
The two near-successes of the Germans with the submarines have caused some writers to decry sea power and the significance of the command. This exhibits confusion in thought. Sea power consists, among the other things, of the power to control movements at sea. Therefore, any instrument, irrespective of its size, means of movement, or medium through which it moves, is an instrument of sea power in history would have been altered only to the extent that the command had passed to other hands and that the means by which the command had been obtained had shifted from surface to sub-surface vessels.

IN A WELL-BALANCED FLEET, including marine forces, air and surface craft, the subsurface vessel has proved its value beyond dispute. The United States submarines achieved significant results in the Western Pacific before the surface fleet was able to contest the command held by the Japanese. In the course of the war, by their sinking approximately 1000 Japanese merchant ships, totaling five million tons, the submarines subtracted materially from the Japanese capacity for resistance. The American submarine also performed yeoman service against enemy combat vessels. In this category, they sank 147 Japanese craft ranging from escort vessels to battleships, 37 per cent of the total, including partially crippled by aircraft or surface ships.

At least until future developments, the submarine is essentially a raider whose potentialities are more limited than those of counter weapons which can be brought against it. In the worst month in World War II it took 400 German submarines to sink the same tonnage that 125 boats did in April 1917. In certain cases, largely dependent upon geographical factors, the plane is more efficient and more expendable as a commerce raider than is the submarine. To make the ratio still more unfavorable to the submarine, in manner of her detection and destruction, the airplane has proved one of her chief foes.

Nevertheless, despite these limiting aspects, the submarine promises to become an even more important element in the navies of the future. Improvements in design and construction are continually giving it superior range, greater resistance to depth bombs, increased depth-diving possibilities, improved torpedoes, and other desirable characteristics. Furthermore, the harnessing of nuclear energy for the propulsion of submarines is feasible. Inasmuch as nuclear reactions do not require oxygen, this would permit steam propulsion for the submarine, and thus obviate the present heavy and cumbersome dual propulsion system. This accomplishment would eliminate two of the greatest handicaps of the submarine: limited underwater speed and endurance or range.

No new weapon has created such violent controversy as has the military airplane. Like the submarine, only vastly more so, the plane has proved itself a formidable weapon. The limitations imposed by weather, fragility, and especially range are considerably offset by speed, by



Big gun battleships, displaced as the capital ships of the Fleet by advances in Naval aviation, found their forte in bombardment of beach emplacements in support of amphibious operations.

elusiveness as a target, and by ability to attack otherwise inaccessible objectives, such as well-fortified harbors and vital seas closed even to submarines. The plane is indispensable to naval forces as both a scouting agent and as a weapon of attack. In reconnaissance capacities the plane tends to tip the scales in favor of the superior fleet and hence strengthens rather than weakens the traditional patterns of strategy.

In an offensive capacity, as a weapon of attack, however, the plane has had more serious and far-reaching repercussions. The ship-based plane has proved its offensive merit in many critical battles, perhaps nowhere more conspicuously than at Midway. The aircraft carrier is a warship, like other warships, with its functions fully specialized and its weapons planes instead of guns. For considerations of naval strategy land-based planes present a somewhat different picture. These planes have wrought havoc on shipping in coastal waters, on docks and repair facilities, on ports and industries which form the substructure of naval power, and at times, especially in narrow waters, on the fleet itself—and not insignificantly, these violent attacks by land-based planes on land objectives have often been made over bodies of water commanded by an opposing fleet.

Beyond dispute the impact of land-based planes on naval warfare has been most important. Does it follow that planes are never naval vessels, or that other naval craft are obsolete or have even lost ascendancy, or that sea power has been overthrown? Certain observations, bordering on the self-evident, may be made. If there was failure to appreciate the fact that had the submarine in World War I defeated the surface vessel it would have in no sense lessened the significance of the command of the sea and the influence of sea power to dominate the land, it is not strange that confusion in thought has arisen with the airplane. For the airplane moves through an entirely different medium and performs functions which affect not only the control of sea movements but of land movements and has introduced a new function which is peculiarly her own, that of strategic bombing. But this does not preclude the fact that the naval plane is a component of modern sea power.

THIS CONFUSION in thought frequently manifests itself in the statement that the airplane has antiquated sea power, a statement which fails to understand the nature of sea power and mistakes the aims of military power for the weapons of execution. Air power in a full and

comparable sense to land power and sea power does not exist. Airborne commerce is not yet so extensive or essential to the economy of a nation that its suppression would paralyze a nation. This is not true of the interruption of land or sea traffic. This apparent adverse comparison of air power to sea or land power is not meant to deny that air weapons might not be the instruments which could so paralyze land or sea movements as to win the victory. But if that view is to be accepted, certain comments are necessitated. In the first place, for the sake of logic, if nothing else, the distinction earlier noted between the objective—the command of the sea, obtained by, and only by, the disablement or containment of the enemy forces—and the instruments of execution should be kept. Whether the vessels be burned as in the battle of Mycale when the Greeks surprised the Persian force who had beached their fleet of triremes, or whether lost by shot, fire, and storm as in the Armada assault upon Britain, or sunk by *kamikazes* as in the battle of Okinawa, the distinction exists between the objective obtained or sought, and the means employed.

But beyond the matter of terms there is another factor of basic importance. Military air enthusiasts frequently fail to appreciate the long chain of events which permit the plane its functions; they ignore, or seem to ignore, the fact that just as the navy is dependent upon shore bases so is the plane dependent upon bases and land or sea transport for the vast amount of its operational requirements. Air superiority is frequently dependent upon sea power. Britain's whole military effort, including her Royal Air Force, was utterly dependent upon the comparative command of the approaches in the Atlantic. In the Pacific, islands proved valuable either to us or to the Japanese only when sea lines to them were kept open. The huge amounts of fuel and other supplies which are demanded to maintain an operational air base make the Pacific islands, the British Isles, or comparable land areas more, not less, dependent on sea transport than was the case before the airplane became a vital member of the military team. In fact, nations which in the past were dependent upon sea communications are even more dependent upon them today not in spite of, but because of, the airplane. And this is true if for no other reason than in the matter of shipping.

MUCH of the controversy and no little of the heat about the role of the military aircraft has centered in the question of the continued usefulness of the surface craft, especially the battleship. This discussion lies outside the problem of the continued significance of the command of the sea which has just been sketched. It is rather a consideration of the instruments which are most likely to achieve the desired command.

Some extremists would rule out the aircraft carrier on the basis that the land-based planes are capable of anything and everything. This contention appears exaggerated because of the serious limitation in range of planes, at least at present. The plane, for example, which must defend a convoy or a task force against air attack must be not only on the spot but in the air when the enemy arrives. The aircraft carrier serving as a mobile base fulfills this need by providing air cover at all times, irrespective of distance from land.

Much more frequently and vehemently discussed than the obsolescence of the aircraft carrier is the eclipse of the battleship occasioned by the advent of the airplane. The airplane is not the first invention which was thought to have eclipsed the battleship. In mid-nineteenth century, the shell gun was said by some to have doomed the battleship, but she adopted iron and grew in size; in the eighteen-eighties, the Whitehead automotive torpedo caused the First Lord of the Admiralty to think that England would build no more warships, but defensive steps were taken and England went on to build the *Dreadnought*. Shortly before World War I, an English admiral proclaimed that the submarine had "driven the battleship from the seas;" but countermeasures were developed and the battleship lived. Bomber and torpedo planes struck death to the battleship at Pearl Harbor and off the Malayan coast, yet less than a year later the U.S.S. *South Dakota* with strong radar-controlled antiaircraft batteries shot down practically every plane that dared to attack her, suffering in the process only one 500 pound bomb hit on one of her main gun turrets.

The difference in performance between the *Prince of*

U. S. submarines sank approximately 1000 merchant ships and 147 combat vessels including battleships.

Wales and the *South Dakota* lies primarily in the development of countermeasures and improved tactics. Just as the submarine was the new weapon in World War I and demanded new defensive weapons and tactics, so comparably was the airplane in World War II the new weapon demanding new defensive measures. The Navy found that fighter cover for all naval vessels was essential, but not enough. The Bureau of Ordnance devoted its major efforts between 1940 and 1943 to the improvement of antiaircraft armament. The results were truly phenomenal in increase in range, rate, and accuracy of fire, and in number of guns. Rockets and radar-controlled guns firing shells equipped with proximity fuses form, with the fighter plane, a protection undreamed of in the early years of the war. Still further improvements are being developed expecially in the attempt to offset the threat of nuclear explosives. Due to deleterious short-wave radiations and their persistence in nuclear explosives, the only protection against them is the destruction of their "carriers"—whatever the precise nature of these may be—before they can strike, or for that matter, come close to striking. But before a carrier can be intercepted, it must be detected, identified, and its course determined. High speed carriers, therefore, necessitate even higher speed interceptors; and further, to hit such rapid carriers, aside from pure luck, a homing device must be built into the projector. Such interceptors which will chase and destroy targets are now available or shortly will be.

The future may show that the battleship has no longer a function. At present, there is logic in the reasoning that no ship can run away from the plane and that survival for the surface ship demands that she be able to stand up and fight. Both from sufficient antiaircraft power to ward off hits and from construction to take heavy punishment the battleship offers more than any other vessel. Furthermore, it is not what can knock a vessel out but what function she performs that is the more significant. The big guns were not heard at Coral Sea and Midway but they spoke ably at the battle of the Philippines and frequently in amphibious operations. Battleship fire provides the only gun, or weapon for that matter, that is sufficiently powerful and accurate to knock out strong land-gun emplacements. There is justification for FleetAdm King's statement that "the new applications of naval gun fire in amphibious operations, as well as in fleet action, have demonstrated that the battleship is a versatile and essential vessel, far from obsolete." With the utilization of the nuclear fission for propulsion and ordnance, with the consequent elimination of bulky fuels and possible reduction in gun calibre, the size of the battleship may be scaled downward, or her armor and hull strengthened, or both; certainly range and speed will be drastically increased.

Predictions on the repeated eclipse of the battleship are illustrative of the fact that prognostications are frequently wrong. Perhaps the most striking recent example of a widespread prediction proving false is in the matter of amphibious operations. Surprise and supply have always figured prominently in such operations. Neither the achievement of surprise nor the solution to the problem of supply has ever been easy. Comparatively speaking, however, in the day when soldiers carried their ammunition and most of their supplies—aside from what they gained from the enemy—on their backs as they waded ashore, surprise could be more readily achieved, landings on picked spots made with greater secrecy, dock and lighterage problems met with less difficulty than in the day of applied science.

Modern technology has drastically altered these features of surprise and supply. At one time the submarine and mine seemed to have eclipsed amphibious operations as they had that of the close blockade. The Gallipoli-Dardanelles campaign was the only instance of land-sea operations on a large scale attempted in World War I and it ended in failure. Though it be admitted that resolute prosecution and better co-ordination might have brought success, it must be borne in mind that four pre-dreadnought vessels were lost in one afternoon to mines in the initial Dardanelles campaign, and that a German submarine played such havoc with the British transports off Gallipoli near the end of the campaign that observers agreed that had submarines appeared earlier no British landings would have been possible.

UNDERWATER DEVELOPMPNTS were not the only factors which seemed to indicate the cessation of land-sea operations. The telegraph, longer range artillery, the railroad, and the motor truck, each and all added to the strength of defense against invasion. Then came the airplane as reconnaissance agent and bomber. And finally, it must be recalled that as the tools of war grew more and more complex, the problem of supply became increasingly more formidable. In the light of all these developments, it is not at all strange that many writers on strategy considered amphibious warfare a thing of history.

Seldom have predictions proved more wrong, for never in the history of sea power has this function of the command of the sea been so widely employed as in the war just concluded—and never more effectively so. For the first time ships, crafts, and vehicles in large number were especially designed for such operations and the tactics best suited carefully developed. "The "alligator," the "duck," the "jeep" carrier, the "bulldozer" and the like, provided an ideal answer to one of the war's oldest and toughest problems—how to develop and maintain a successful invasion on a hostile coast. Yet in no instance of modern warfare is there greater need for precision of timing and for the utmost integration of

weapons and services. The coordinated effort of all elements of the balanced fleet-landing force, air, surface, and sub-surface craft—is demanded. Deficiency in any one branch, fighter cover, bomber support, sea control, or landing strength, may spell the difference between success and defeat. The mutually supporting roles played by the members of the naval combat team in a successful amphibious operation finds naval sea power at peak performance and clearly demonstrates the wisdom of a truly balanced fleet.

Yet despite this phenomenal performance with its startling reversal of prediction, amphibious operations are again under a cloud; this time it is the atomic bomb which threatens to eclipse them. In light especially of their deadly radio-activity, such weapons could surely play havoc with the vast collection of enemy ships lying within close shore range for several days or weeks while giving support to the land operations. Some authorities, however, are optimistic as to the development of possible counter measures against the effects of atomic bombs on amphibious operations. In view of previous success in overcoming seemingly insurmountable obstacles, one would be rash to deny the possibility of a repeat performance in the case of amphibious operations and atomic weapons.

A DISCUSSION of amphibious operations brings sharply to the fore one of the major achievements of the United States Navy in the past war, the accomplishments in the fields of logistics. Logistics, or communications as this branch was more frequently referred to in the past, may be briefly described as the problem of furnishing the right supplies to the right place at the right time. Technological developments have increased many fold the problem of logistics. Modern war demanding heavy concentration and great volume of fire power calls for huge amounts of ammunition, and the high speeds of many of the carriers mean great fuel consumption per ton-mile. Five times the equipment per soldier was transported in World War II as in World War I. In fact, in the last war 12 tons of supplies and equipment were shipped for each soldier sent overseas and each month another ton was sent in food, clothing, and ammunition.

Logistics, matching for the first time technological developments in armament, donned its seven-league boots in World War II, and before the close of the war was supplying eight major fronts and a near dozen additional combat zones. When one realizes the fact that the men and material of the arsenal of democracy were transported 3,000 miles across one ocean and 7,000 miles across another, to the major theatres of operation, the importance of sea transport appears in its true perspective and the lowly tramp steamer takes on a new and proper significance.

A little-appreciated aspect of logistics lies in the supply problem of the combatant ships. On V-E day there were over 100,000 crafts of all types in the United States Navy. Only 1,322 were combatant vessels; the remainder, over 98 per cent, were supply ships, tenders, oilers, repair ships, ammunition ships, hospital ships, and transports. This fleet train, or Service Force as the Navy calls it, gave logistical support at distances and for periods of time without parallel in history. At times it maintained the fleet as far as 5,000 miles from a permanent base. The Fast Carrier Task Force that left the Marshalls in February 1944 had not returned to a permanent base at war's end over 17 months later. In light of such facts, one may understand why Adm Nimitz termed the Service Fleet "our greatest secret weapon."

ONCE AGAIN nuclear fission enters the picture. The future functions of the Service Force may be less significant; they surely will be different. With the utilization of atomic energy and a new anti-fouling paint just developed by the Navy, the former drastic restrictions upon range and endurance in naval operations will have been removed.

Certain highly important effects of modern technology upon sea power have scarcely been touched upon in this discussion which has been primarily concerned with results as they affect the strategy-tactics aspect of sea power functions. How, for example, have inventions and discoveries, by increasing or decreasing national military and civilian production potential, influenced the comparative standing among sea powers? Or, how have technological advances, most conspicuously steam and combustion engines, by drastically altering the previous ratio of sea and land mobility, affected the comparative advantages of land and sea power? Or again, how may certain new developments, as atomic and biological warfare, by the probable shortening of war, affect the slow cumulative force of sea power? These wider, most interesting, and highly pertinent ramifications on how pure and applied science influence sea power will be considered in a subsequent article.

From viewpoint of the strategy-tactics emphasis of the present article, certain summary conclusions are warranted. The basic *purpose* of sea power in war—the command of the sea—has not been materially affected. The basic *processes* by which this purpose is achieved—the destruction of the enemy fleet and the close blockade—have been definitely modified. The *means* of achievement of this purpose—the instruments and their tactical impact—have been drastically altered. There is no evidence that modern technology has outmoded sea power. In our modern world, in our changing world, the role of sea power in the life of a nation still remains important.

to be concluded

Any equipment that is not needed for fighting and comfort is thrown away by experienced combat men.

The light pack is the heaviest pack that should be worn by a man expected to move fast and fight.

"New Look" Without Equipment

By Maj James A. Donovan, Jr

1STLT CLARENCE E. SCHWANEKE, AN ALERT AND conscientious young aviator, recently had occasion to land over the beach in West Coast maneuvers. When he found out what "gravel-crunchers" had to work with, he was not at all satisfied. As a result he wrote a commendable series for the GAZETTE entitled *A "New Look" for Individual Equipment.*

The lieutenant had a lot of good ideas but I'm of the opinion that he was off on the wrong tangent in regards to solving the problem of the Pack M1941 and the Sleeping Shelter and Bedding Roll. This is mainly due to the lieutenant and his outfit not knowing that experienced Marine infantrymen in war don't "follow the book" in dealing with their pack and allied equipment, and they were also the victims of a Marine logistics practice that is outmoded.

The answer to these problems is not in the direction of how to better fit the marine with a more comfortable burden—but to relieve him entirely of all equipment that is not essential to his fighting and functioning in the field. The whole concept of "individual equipment' 'is due for a change. The only items of equipment that really need to be "individual" are a man's tooth brush and his weapon. In combat all extra clothing, protective clothing, sleeping equipment, mess equipment, and shelter equipment should be *unit property*. All such items should be carried, landed, transported, and issued by the parent battalion, regiment, squadron, or group as needed.

Recently publicity pictures show personnel of a Marine air group "storming" ashore at Aliso Canyon. Each man was burdened with a heavy pack and a cumbersome bedding roll while coming ashore on the same beach ponton were empty 6x6 trucks.

Other pictures show 2d Division marines charging ashore in Argentia maneuvers, each man bending under what appeared to be a 50 pound pack that included everything, no doubt, from spare shoe-pac soles to the individual's own proper size beauty-rest sleeping bag.

Anyone who has landed under fire will recall the thousands of packs, rolls, gas masks, and other "individual" items that littered the surf, the beaches, and the roadsides wherever overburdened men saw fit to discard their equipment so that they could move fast. It is a

fact of combat proven many times that men under fire relieve themselves of anything that slows them down or tires them. All equipment and logistic planning should face this fact.

Even air groups or service units that do not normally land under fire should be required to carry on their person only that basic clothing and equipment that will be required to carry out their immediate functions. Sleeping bags, shelters, rolls, and knapsacks should be landed and moved by the unit supply section.

World War II combat pictures of Germans, Russians, or U.S. infantry in Europe usually show those fighting men without packs of any type.

On the other hand marines in the Pacific often landed with goodly loads on their person but the veterans soon learned what they needed in the way of fighting tools and what was required for personnel comfort. The rifle units that moved on foot soon stripped themselves to living essentials and thereafter traveled light.

So let's look at the pack and individual equipment from the point of view of making the best of it. (We're probably going to have present equipment for years anyway.)

The rifle and pistol belt are not too bad and are essential items. When hung with many fighting tools; pouches, shovel, kits, canteens, etc. they will ride heavily on the hip bones. Pack suspenders worn with the belt alone will ease this load. Over this the gas mask is worn when required. At best all present models of gas masks are a cumbersome burden. Perhaps the Army will someday provide us with a light plastic model that will include a geiger counter and infra-red lenses.

Next the light marching pack (LMP) is the heaviest pack that should be worn by a man expected to move fast and fight. This can be easily slipped off without effecting his combat gear carried on the belt.

In the light marching pack a man operating in a temperate zone climate (Let's forget about the South Pacific for a while) needs only : rations (⅓D, ⅔K type), one pair of spare socks, soap, razor, toothbrush, small face towel, issue sweater, and his poncho folded and held under the pack flap.

When wearing the Field Jacket, M1943, certain items can be carried in one of the ample pockets. The spoon, toothbrush, smokes, gloves, ⅓ of a ration, and a grenade or two can be fitted easily in the jacket.

What about mess gear? Present mess gear is obsolete. A spoon alone will handle most current field rations. The trend in rations is to make them self-sufficient providing plastic spoons, napkins and everything but finger bowls.

When living on "A" or "B" type rations the present mess gear never was satisfactory. There is no reason why nested trays can't be provided by the galley along with utensils for this type of feeding. Mobile and field galleys can handle trays as well as other mess gear.

If it is found necessary for individuals to employ the knapsack and blanket roll they should be made into what has been called a "cargo pack." It consists of the blanket roll (and shelter half) held and tied under the knapsack coupling strap, similar to the field marching pack, and then made up into fire team bundles of four or five cargo packs. These are tagged by squad and platoon and are thereafter moved by unit supply sections.

In combat a more realistic method of handling rolls, bedding and spare clothing is by the aforementioned common or unit property system. Each bed, blanket, or sleeping bag roll is unit property issued as needed and always carried for the fighting man by his supply section.

Extra and clean clothing is best handled in combat operations by means of clothing exchange systems. Men turn in worn and dirty clothing and are issued clean and new like items. Dirty clothing is then washed by the laundry platoon, and reissued to battalion or squadron for issue to the troops when needed. The fighting man can not be burdened with extra clothing or the problem of repairing and washing it. This system also keeps the spare clothing of casualties from being tied up with personal effects.

Before dismissing the pack and sleeping equipment that Lt Schwaneke found so unsatisfactory, let us say that the plastic pack-board idea has much merit especially if it is made of the body-armor type plastics.

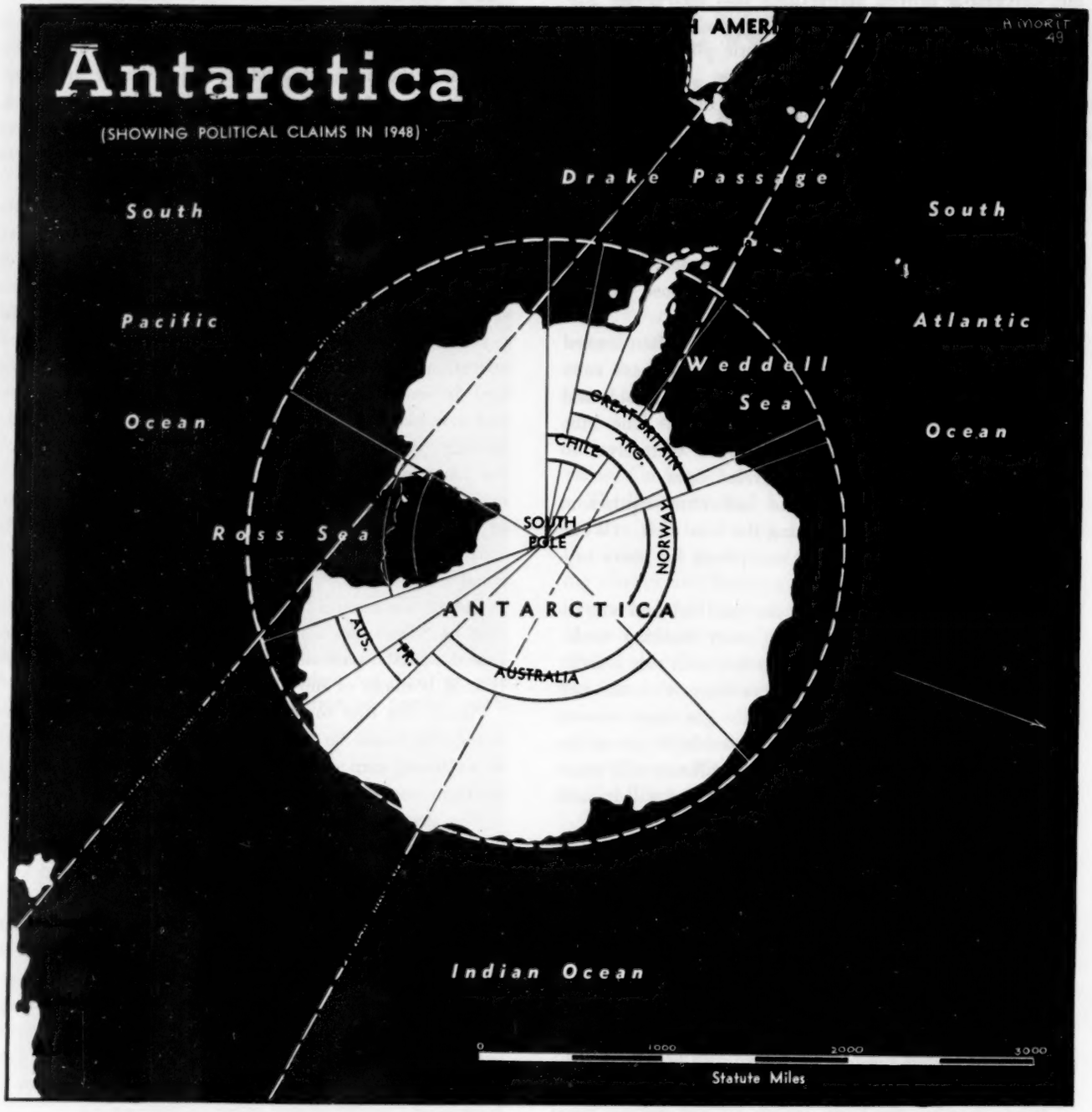
Along this line someone might give thought to other items that could be valuable as body armor too. Such as canteens, map cases, small plastic pieces to insert in uniform pockets etc.

For sleeping equipment the best solution is not to require individuals to carry it. The new developments should be in the direction of air mattresses, plastic koroseal type materials, and light weight insulation.

As for the utility clothing—no attempt will be made to defend these items of equipment. The sloppy cut, the weak seams, the fading color, the silly pockets all add up to make this jury-rig "uniform" an item that would best be expended as soon as possible. There is no reason why a good looking, practical, military uniform can't be designed to replace the utility suit. I know several people who would gladly work on the project.

Lt Schwaneke has some good constructive ideas but like lots of other Americans in uniform he tried to carry too many personal comforts into the field. If "the book" or the operations order says each man will land with two pairs of shoes, one pair of green skivvies on his person and two pairs of white ones in his transport pack (for liberty in Diego) then I guess we will just have to put up with this peace-time situation. But if the chips start flying again and the fighters are overburdened we will again see thousands of rolls and packs floating in the surf along with the snow-shoes and spare galoshes.

USMC



International Grab Bag

By 2dLt Harries-Clichy Peterson and Robert H. T. Dodson

Palmer Peninsula is the only part of the Antarctica that is of any strategic value. With its subsidiary, the Magellan Strait, it forms the only natural open waterway across the Western Hemisphere. It guards our second Atlantic-Pacific Passage.

THINK OF WHAT WOULD HAPPEN IF SOME FUTURE "Wrong Way" Corrigan, celebrating New Year's in Miami, should take to the air in a giant bomber and instead of heading north for New York, should head due south. Some 20 hours later when running out of fuel he'd find himself over Antarctica, the south-polar continent. It would be so unlike his recent memories of the earth, he might reasonably doubt if he were on the same planet. He'd look up and see a bright sky with the familiar sun, but looking down his eyes and certainly his composure would be dazed by a blindingly brilliant glare from the snow surface. Alone in this almost uninhabited land, his concept of time would vanish, for January is midsummer here and the never-setting sun makes all hours daylight hours.

For a landing place he would have picked the remotest place on earth, an area worse than the center of Tibet, and his chances of rescue would be slim indeed. Let's leave him to shiver in his unfortunate predicament, while we consider the nature of this land at the bottom of the world.

Remote, surrounded by floating ice as menacing as any Notre Dame line, and walled with inhospitable shores, the seventh continent is little known, but not unknown. No fewer than 170 expeditions have contributed to a knowledge of Antarctica and recently the last unknown segment of the Antarctic coastline has been filed with aerial trimetrogon cameras of the Ronne Antarctic Research Expedition. Two Navy expeditions, Task Force 68 under Adm Byrd, and Task Force 39 under Comdr Ketchum, undertook exhaustive trafficability surveys of a major portion of the Antarctic periphery. Except for the almost well-beaten path from the Ross Sea to the Pole, and the Lincoln Elsworth aerial trajectory across Ellsworth Land, almost nothing is known of the interior of the continent.

With an estimated area 5½ million square miles, Antarctica is nearly as large as the United States and Europe combined. Its coastline of over 14,000 miles runs from the southernmost point in the Ross Sea at 78° South to a latitude of 63° South on the Palmer Peninsula. Beaches are rare and at all points immediately inland from the coast high mountainous plateaus are met. The average elevation of Antarctica is estimated at 6,000 feet, easily the highest continent in the world. Near the pole there is a plateau nearly 10,000 feet high. There are no native populations in the Antarctic nor have any signs of the existence of man in the recent geological past been uncovered. It is by far the coldest place on earth. The lowest published temperature is —72°F, but it is very probable that winter temperatures at the South Pole are much lower.

No Man's Land of the Southern Hemisphere

ANTARCTICA is relatively unimportant in present-day global strategy. It is not only the dead-end bottom of the earth, but even in terms of global air routes it is on the road to nowhere, the no man's land of the southern hemisphere. Unlike its antithesis, the Arctic, it is not surrounded by heavily populated continents containing the world's most powerful nations. The possibility of world powers coming to grips across the south-polar continent is very faint indeed. It lies in what geographers call the water-hemisphere of the world, that half of the earth's surface which includes the greatest amount of ocean in proportion to land.

The fact that Antarctica is surrounded by so much water is reason enough for its isolation and relative strategic insignificance. However, even more explanation for this can be found if we examine the nature of the land masses which lie closest to it on the other side of the encircling oceans. These are, in order of proximity, South America, New Zealand Australia, and Africa.

a background article

Unlike the Arctic, no world air routes of potential military or commercial importance cross Antarctica. Only Australia-South America routes fringe upon Antarctica. One of these, the Perth-Buenos Aires great circle route, does cross the center of the continent.

Because of this relative lack of strategic value, it is doubtful if Antarctica will ever be the scene of large military operations in wartime. The only logical reason for warfare would be a dispute over the continental territory itself. This is unlikely, as economically significant resources remain unfound. Warfare in the interior of Antarctica would be next to the impossible and in many ways it presents more hazards to the aviator than transoceanic flight.

Harries-Clichy Peterson, a reserve Marine lieutenant, accompanied the Ronne expedition to Antarctica in 1947-48. Robert H. T. Dodson was an Army observer on the same expedition.

Guards Our Second Atlantic-Pacific Passage

HOWEVER, there is one part of the continent that has strategic significance in its own right. This is the region below South America known as the Palmer Peninsula, a long finger of the mainland which reaches north to nearly close the gap between Antarctica and South America. The intervening 650 miles of violent seas is known as the Drake Passage. With its subsidiary the Magellan Strait, it forms the only natural open waterway across the Western Hemisphere. Should the Panama Canal be closed, it would have great importance as a sea route. In the first world war this area figured in the news as the scene of a sea battle off the Falkland Islands, where the British destroyed the German Pacific squadron as it was making a run for home.

In the second world war British authorities were so concerned over the likelihood of German submarines using Palmer Peninsula bases that they destroyed the major whaling station at Deception Island as a preventive measure. To best control the Drake Passage, naval and air bases would have to be maintained on the Antarctic as well as on the South American side. Although the Palmer Peninsula might be garrisoned, the rest of Antarctica in event of war would probably remain in the no man's land that it is today.

For Sailors Only

EVEN IN THESE DAYS of globe-circling bombers, no aircraft based on any of the other six continents has ever flown over Antarctica. The seventh continent has been reached by ships of the sea. The gateway cities of Dunedin, NZ; Hobart, Tasmania or Melbourne, Australia; Capetown; Port Stanley, Falkland Islands; and Magallanes, Chile—listed in order of increasing nearness to Antarctica—overlook from 700 to 3000 miles of the world's worst seas before the Antarctic coastline is reached.

The world's strongest winds and lowest mean pressures are found in a belt encircling the Antarctic coastline. But it's not the low pressures that cause all the storms. Running the Drake Passage, nearly hurricane force winds can be experienced with thunder, lightning, hail, rain, and snow underneath each cumulonimbus cloud that races by.

Entering Antarctica one passes through the roaring forties, the furious fifties, and the screaming sixties. Once past the Antarctic Circle—66° 30′ South latitude—you become a member of the exalted society of "frozen stiffs," if you live through the initiation. By then the ship will be well inside fields of pack ice which deaden the swells of stormy seas.

While isolated bergs have been reported as far north as 45 to 50°S, the northern limit of pack ice is generally confined to about 500 miles from the Antarctic coastline and consists of ice flows ranging from three to eight feet thick with a few bergs interspersed. Like rivers flowing into the sea at lower latitudes, icebergs are formed by the overflow into the sea of glaciers and shelf ice. Sometimes masses of shelf ice float to sea in tabular shapes 20-40 miles long and over a thousand feet thick. Such icebergs can be recognized miles away by what polar navigators call an "ice blink." This is the strong white glare in the sky caused by the almost 100 per cent reflection of the ice surface compared to the almost completely absorbing water surface. A slight cooling or slight decrease in the salinity of the sea (icebergs are fresh water) are other ways of detecting icebergs if suitable sensitive instruments are available. Icebergs are excellent reflectors of radar waves and show up remarkably distinct on a PPI scope.

Ice navigation is tricky. Suppose a ship can make only two knots against an ice floe without hull damage. Then suppose a wind comes up and drives the ice at six knots! Records are available of several such results. One crew (*Endurance*, 1916) spent nearly 16 months entrapped in ice and drifted over 1000 miles before escape. Other less fortunate explorers had their ships crushed at sea. But our Navy showed it can lick this menace and established a new era in ice navigation that will have world-wide significance in opening up high latitude sea routes. In sailing to Little America in 1946, Task Force 68 (Operation Highjump) succeeded in penetrating over 800 miles of Ross Sea pack ice—the worst ice conditions since Ross first entered in 1845. The secret of this new age is the steel fist of the new *Northwind* class of Coastguard icebreaker. Approximately 200 feet long, this 6,600-ton spearhead is powered by a 10,000-horsepower diesel-electric drive—nearly as much power as a giant bomber. Byrd reports that three-foot ice could be negotiated at a speed of 10 knots and that a 30-foot ice wall was battered down in less than a half hour. Helicopters fly from a stern flight deck and act as seeing eyes of the breakers. The principle of operation is not to push acres of ice aside to form a small opening, but for the breaker's bow to ride up on the ice and let the ship's weight crack it. Byrd showed it possible for large supply ships and aircraft carriers to follow in the icebreaker's wake. Being able to bring a concentration of sea and naval air power into many previously ice-locked localities is not without significance.

LANDING ON ANTARCTIC SHORES can be among the most difficult tasks imaginable unless one has a very long length of coastline to select from. Sandy beaches are unknown and gentle rock escarpments are found only rarely at the off-lying islands and along the Palmer Peninsula. Glaciers which terminate in the sea are invariably either too high or too active for landings, and even if supplies could be brought onto them, the difficulty of transporting

There is no ship-to-shore problem here. USS *Edisto* and USS *Burton Island* break their way through ice and unload supplies directly. Note the helicopter on after flight deck of leading ship

across crevasses would be forbidding. Low shelf ice (hard packed snow turned to ice and existing over bays 10 to 100 feet thick) or strong, fast bay ice (frozen sea water) are the best landing sites. Ships can be maneuvered alongside the edge and unloaded as onto a dock. Three feet of firm ice can safely support over 3000 pounds on a six by eight foot weasel-drawn sled.

Landing on rock beaches requires beaching craft and is always subject to the problem of surf. In addition every on-shore wind will pile up ice floes and delay operations. The problem of transport over rock is another difficulty for small units not equipped to build roads. But the most serious of all is the probability of a violent Antarctic gale suddenly sweeping down upon a landing operation. It's unlikely that the group meteorologist could always spot such a gale sufficiently ahead of its arrival, so gale precautions must always be taken. Such hazard is described by LtComdr G. F. Dixon (Australian Navy) while landing his 14 scientists and 400 tons of equipment at Heard Island in 1947:

> Days of reconnaissance followed until a camp site was found. During the first days of the landing operations, this inhospitable land, unpredictable in its violent moods, caused many disappointments and hardships. One by one our small craft carrying stores to the land broke down or were driven ashore by the sudden and fierce winds which swept down off the glaciers, churning the waters into a violent fury.

Elsewhere in his report Commander Dixon mentions a squall with winds exceeding 120 miles per hour. While lying-off for 18 days, only 22 hours were suitable for beaching the expedition ship, a LST.

It was once said that escape, adventure, and recognition comprise all personal motives for Antarctic exploration.

Certainly this was true of the first small expeditions to reach the pole on foot. But can the modern mechanic find escape from his greasy tools in a ship's engine room, or the first lieutenant find adventure behind his desk, or the quartermaster find recognition behind his helm? Although hardships occasionally occur and the scenery remains magnificently awe-inspiring, the romance of visiting Antarctica is giving way to the efficient objectivity of large-scale scientific or mapping missions. The large Navy task forces skirting the Antarctic coastline in recent (Austral) summers have made great contributions to our knowledge of the region. In a number of scientific fields as well as in geography the Ronne Antarctic Research Expedition, a small private American group, did outstanding work during the last year. Thus the emphasis now given by men of leadership organizing Antarctic groups is on the more support-getting fields of scientific, geographical and tactical research.

Unsliced Political Pie

WHILE IN THE PAST Antarctic claims were issued in reward for heroic exploration, recent political rivalries seem to center on mineral speculation is illustrated by a remark of Adm Byrd: "It is impossible to imagine a large continent without vast mineral wealth of many kinds buried beneath its rocks." Table I shows the principal claims on Antarctica.

COUNTRY	CLAIM (Sectorwise)	BASIS OF CLAIMS	MOST RECENT VISIT	INTEREST
ARGENTINA	25° W to 68° 34' W	Historic, geographic contiguity, exploration.	Naval task force, 1947-8.	Potential natural resources; scientific.
AUSTRALIA	45° E to 160° E (Exclusive of Adelie Land)	Exploration in conjunction with British explorers.	Government Expedition, 1947-8, with continuing occupation.	Scientific research.
CHILE	53° W to 90° W	Historic, geographic contiguity, juridicial decrees, administrative rulings, whaling.	Naval task force, 1947-8, for scientific research and reaffirmation of claims, with continuing occupation.	Strategic, potential natural resources.
FRANCE	136° E to 146° E (Adelie Land)	First landings.	Charcot, 1908-10, for scientific research.	Scientific, potential mineral and marine resources.
NEW ZEALAND	150° W to 160° E (Ross Dependency)	Exploration in conjunction with British explorers.	N. Z. Antarctic Research Expedition, 1929-31.	Marine resources.
NORWAY	20° W to 45° E (Queen Maud Land)	Discovery, or first landings.	Brategg Expedition, 1947-8; oceanography, financed by Nor. Whaling Assoc.	Exploitation of marine research, scientific.
SOVIET UNION	None	———	Voronin Whaling Flotilla, 1947-8.	(no comment).
UNITED KINGDOM	20° W to 80° W (Falkland Islands Dependencies)	Discovery, occupation, investigation.	Falkland Islands Dependencies Survey, 1944- , continuing occupation.	Territorial investigation, scientific.
UNITED STATES	Desires Internationalization	"To promote scientific investigation and research."	Ronne Antarctic Research Expedition, 1947-8, private, for science & geography.	Scientific research and territorial investigation.

SOURCE: Interview with consuls.

Table I: Political Claims on Antarctica.

Antarctica cannot be broken down into North, South, East and West. There is no land mass on earth so similar in all its parts. With a few exceptions, such as the rock-ribbed Palmer Peninsula, it would be hard to tell one part of the continent from another. If you suddenly found yourself on an Antarctic coastline you would have a hard time telling the Indian Ocean side from the Pacific. True, you would have a better chance of locating yourself and a better chance of survival on the coast than on the interior.

The interior is everywhere the same — endless expanses of icy plateaus punctured in places by mountain ranges, most of them half buried in the sea of ice which is thousands of feet thick. The coast, due to the influence of the sea, has variety that the interior lacks. In the event of a forced landing the coast would be a much better choice. Life in the interior is very different from life on the coast. An airman forced down over the interior would have a hard fight for survival. His situation would be closely analogous to being forced down in the middle of the Sahara Desert. At least he would not have to worry about dying of thirst as long as his fuel supply lasted, and only in this respect would he be better off than in the Sahara.

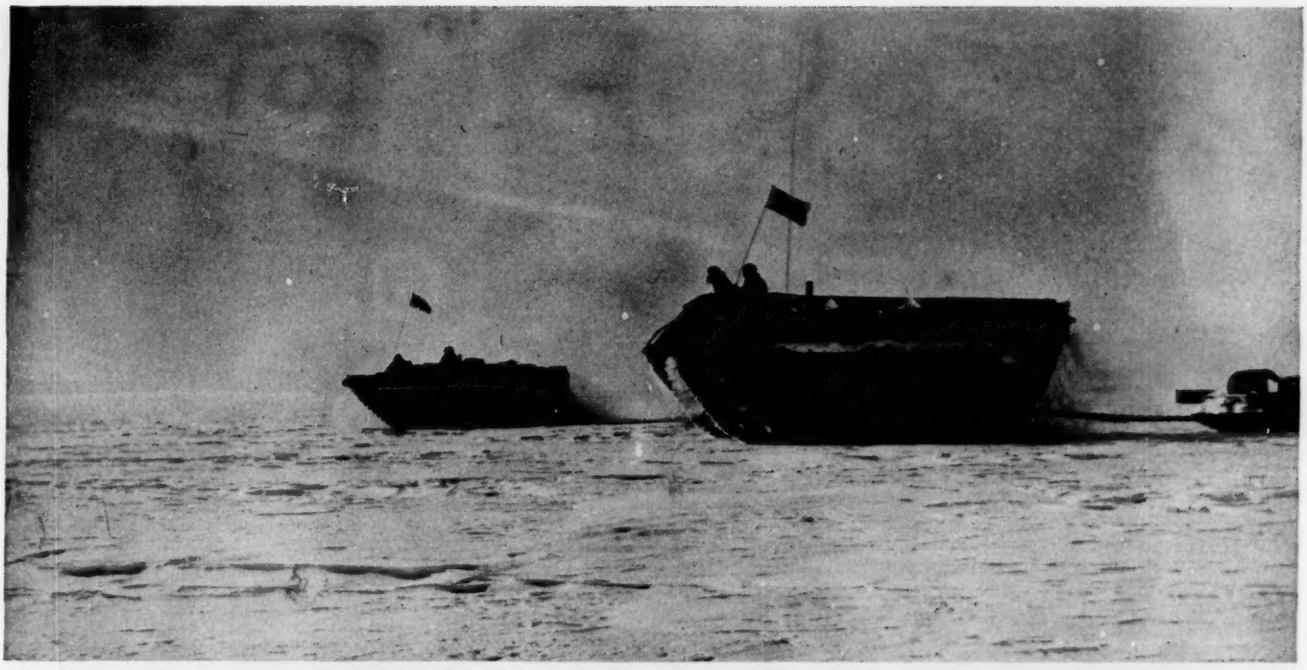
In all other respects the Antarctic interior would be the world's worst place to be stranded in. Extreme cold, high winds, uncertain compass directions, lack of natural shelter, plant or animal life, plus the lack of human habitations or travelled routes would give the uninitiated airman little more than a Chinaman's chance. But with proper equipment and good training an airman can expect to survive until picked up.

There are three common causes of disaster on the surfaces of Antarctica: Slips into crevasses, insufficient clothing, and lack of food.

Crevasses, the huge cracks hundreds of feet deep in the ice formed by the movement of glaciers, are often bridged over with snow. These deceptive snow bridges have been known to give way and swallow entire dog teams — sled, driver and all. Sea ice is also hazardous when it begins to break up and is criss-crossed with leads of open water. Dogs, sleds and men often go into the water attempting to cross the wider ones. If a lead becomes too wide, it can cut off travel altogether or necessitate long detours. Skis are the greatest safety measure in travelling over crevassed glaciers or rotten sea ice.

Travel on foot, without skis, can be slow as well as dangerous. A good example was the case of three British airmen forced down in Antarctica last year. They tried to walk back to base from their crashed airplane, but deep snows made walking such an effort that they averaged less than five miles a day. After a week at this snail's pace, they finally were located and picked up by a rescue plane. On skis they could have covered the distance in a few days.

TERRAIN DANGER is only one hazard of the Antarctic. Without sufficient clothing and shelter you would freeze to death. Without stoves for melting water you would die of thirst. And the interior of the continent offers nothing



LVT trail party commanded by Capt Vernon D. Boyd, USMC, returns to Little America after seven day cache-laying trip into interior of Antarctica. Food and fuel was stored at Mt Washington.

in the way of a natural food supply. Clothing, stoves and food are essentials for survival. Tents are also necessary, but an igloo is a good substitute if you know how to make one.

Even if supplied with the necessary items of survival equipment, you would still have to be on your toes to avoid running into trouble. Frostbite may attack without warning on any exposed skin surface when temperatures fall much below 0° F. Heavy exercise causes perspiration, one of man's worst enemies in the polar regions. At extreme cold temperatures, perspiration and breath moisture condense as ice on the inside of clothing and sleeping bags. Getting rid of this ice accumulation is a problem that has confronted Antarctic travellers ever since the days of Scott and Amundsen. If not dried out by the heat of stoves in closed shelters, or if not shaken off the garments regularly, it will continue to accumulate until the insulation is destroyed and the wearer literally encased in ice.

WHAT KIND OF FOOD is needed by surface travellers in Antarctica? There are two important considerations: It must contain a high percentage of fat for energy and it should be highly concentrated and dehydrated to save weight. Antarctica is a natural ice[illegible] there is no need for elaborate [illegible] prevent spoiling. A pound of [illegible] pieces of [illegible] machete rather than [illegible]

Most Antarctic explorers have lived on a main diet of pemmican, a highly concentrated mixture of lean meat, fat, and other minor ingredients designed to give it taste as well as calories. This pemmican is carried in the form of bricks, which are dissolved in hot water to form a gruel or soup. This is a food packed with energy but not too appetizing. It is best suited for Antarctic surface travel, where weight-saving is important and high energy food is required. Just as an illustration, one man-month of a pemmican ration containing a balanced diet of over 5,000 calories a day weighs only 65 pounds.

The basic rules for survival are the same on the coast as in the interior, but on the coast there are many helping factors. First, there is animal life along the coast in the form of penguins, other birds, seals, and whales. The gulls and other birds are too wary to be caught, but the seals and penguins, unaccustomed to land enemies, can be caught easily and killed for food. Penguin eggs are as good as a hen's egg and although seal steak is no dish to rave about, seal heart and seal liver (especially those of a new-born pup are dishes for the Waldorf. Secondly, the coasts are much lower, and near to the relative warmth of the sea (never below 28° F).

Surface travel could almost be called one of the vital [illegible]eans of survival. Since the interior and many parts of [illegible]ast cannot keep a man alive, his safety depends [illegible] on how fast he can put miles behind [illegible] can reach him. The indi[illegible] is to travel of skis. How[illegible]ever, [illegible]s of several men can do

A jet-assisted, ski-equipped R4D leaps into the air from Little America on a U. S. Navy aerial mapping mission. Aircraft has just about replaced the famed sled dog teams as a mode of travel.

best with a dog team. The dog team has lost much of its significance in competition with the airplane and mechanized surface vehicles. As one British author said, "With a dog team you travel at a snail's pace, and like a snail you carry your house with you." Because the dog team is such a slow method of progress, sled parties must take a complete outfit of tents, food, clothing, and other supplies with them if they expect to cover any appreciable distance.

On recent expeditions much of the dog team supply burden has been alleviated by air support. This combination of dog team and airplane has proved very effective. It allows the dog team, which can stay in the field with much less risk than an airplane, to range much greater distances and for months at a time on exploratory missions. Even greater are the advantages of supporting dog teams to airplanes. Sled parties, spaced at intervals along the air routes, can give weather information by radio. They serve as radio monitors, picking up weak signals from nearby planes and passing them on to other planes, ground parties, or bases far away. The dog team parties can obtain ground control for aerial photographic surveys. Roving dog teams can inspect and mark off emergency landing fields for possible future use. And most important of all, the dog team serves as a valuable rescue team for grounded airmen. It can reach places where individuals cannot go (because of smaller radius of action), and places that no mechanized vehicle, airplane, or helicopter can get to.

Many disputes have arisen over the relative merits of dog team and mechanized vehicles for surface travel. On smooth terrain, such as the interior plateaus or on sound sea ice, a mechanized vehicle can be stopped short by obstacles or become hopelessly mired in soft surfaces while the dog team plugs doggedly on. The failure of one part in a dog team (the loss of a dog) is not fatal.

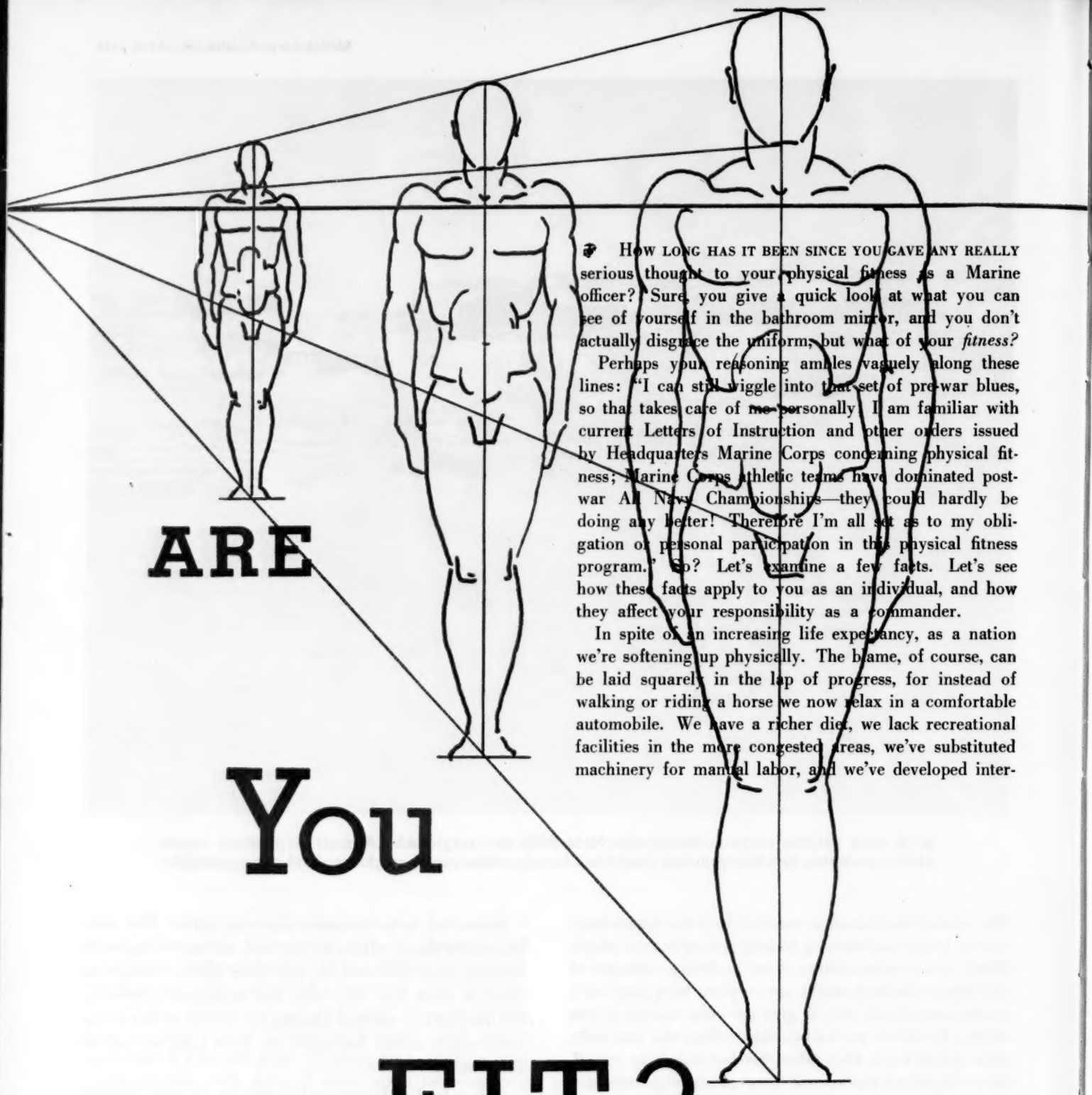
U. S. Navy gasoline cache in Antarctica. Note R4Ds in background. Aircraft is principal means of transportation, but dog teams are used when terrain makes use of mechanized vehicles impossible.

The missing dog's food is saved to keep the others functioning longer, and the dog himself is food for the others. What's more, when crevasses or leads are encountered dog teams can be brought across piece by piece, but a mechanized vehicle has to give up when the going gets tough. It cannot be back-packed. Also, the dog team keeps going for a while when the fuel supply is cut off. Dogs can travel for several days on an empty stomach while an engine stops dead without fuel.

DESPITE the apparent advantage of a dog team there is much to be said for the mechanized vehicle and its potential value with new technical improvements. Where no serious barriers to surface travel exist, and when the vehicle is near a supply base, it offers more power, speed and comfort. It is more adaptable to movements of large groups, whereas the dog team is more suitable for small and detached units.

Antarctica is the cleanest place on earth. Men who have spent three months on the trail without a change of clothing have returned to find their clothes almost as clean as when they left. Man and man-made objects so far have had no effect in altering the beauty of this continent, which nature has made the most pure as well as the most barren.

It is a land of silence and desolation, of stark, infinite beauty. Except for the occasional cries of seals and penguins on its seaward rims, the entire five million square miles hears only the sound of the wind, the cracking of crevasses, or the rumble of an avalanche. It is Mawson's *Home of the Blizzard* and the scene of Cherry-Garrard's *Worst Journey in the World.* The low hissing moan of the wind as it sweeps over the snow is the voice which best expresses what Shackleton called "the solitudes that sentinel the Pole." US MC



ARE You FIT?

HOW LONG HAS IT BEEN SINCE YOU GAVE ANY REALLY serious thought to your physical fitness as a Marine officer? Sure, you give a quick look at what you can see of yourself in the bathroom mirror, and you don't actually disgrace the uniform, but what of your *fitness?*

Perhaps your reasoning ambles vaguely along these lines: "I can still wiggle into that set of pre-war blues, so that takes care of me personally. I am familiar with current Letters of Instruction and other orders issued by Headquarters Marine Corps concerning physical fitness; Marine Corps athletic teams have dominated post-war All Navy Championships—they could hardly be doing any better! Therefore I'm all set as to my obligation or personal participation in this physical fitness program." So? Let's examine a few facts. Let's see how these facts apply to you as an individual, and how they affect your responsibility as a commander.

In spite of an increasing life expectancy, as a nation we're softening up physically. The blame, of course, can be laid squarely in the lap of progress, for instead of walking or riding a horse we now relax in a comfortable automobile. We have a richer diet, we lack recreational facilities in the more congested areas, we've substituted machinery for manual labor, and we've developed inter-

By
LtCol Charles L Banks

The transition from rigorous active campaigning to the more sedentary life of peacetime requires a readjustment in all living habits, particularly exercise and eating. Overweight and the poor condition that results reduce efficiency

ests that certainly don't lead to physical conditioning.

Nevertheless, due to the mission of the Marine Corps the Marine officer must be in condition at all times to perform the most rigorous duties. In the past few years he has had to make a transition from the active life of war to a less active peacetime routine, and in many cases this has meant a sedentary life such as administration, desk soldiering, or whatever you want to call it. This transition requires a normal readjustment in all living habits, particularly exercise and eating. The most prevalent solution, while on duty that requires a minimum of physical exertion, seems to be, "When I receive my orders for troop duty I'll really get into shape." One of the weak points of this waiting solution is that it's twice as hard to regain proper condition after a period of inactivity, and this is especially true as one grows older. The muscles and organs come around slower after a lay-off as the years pile up, and in any case when individuals pass the 30 mark it becomes increasingly difficult for them to reach and maintain a high level of physical fitness. Not that it's impossible, of course; it just takes longer and more conscientious effort. Proper conditioning is a continuing requirement and cannot be started and stopped like reading a not-too-interesting-but-everyone-is-reading-it best seller.

THE MOST DISCERNABLE, or one might say obtrusive, sign of declining fitness is overweight. Unfortunately, the so-called "middle age spread" applies not only to those in middle age; it applies all too frequently to officers well on the friskier side of middle age. Overweight, and the poor conditioning that results, tends to reduce efficiency and often decreases life expectancy. It's no medical secret that bad physical condition means accumulation of excess fatty tissue, impairment of the digestive tract, poisoning of the system, all of which place a greater load on the heart and organs and lead to passing out at a premature age.

Overweight occurs, of course, when the body is given more fuel than it needs to generate the energy required for normal functioning. A Marine officer in an FMF Unit, participating in intensive training, needs between 4000 and 5000 calories daily. On the other hand, the fellow officer sitting behind a desk only needs 2500. Obviously a change of duty requires a change of diet. Diet in this case doesn't mean a newspaper or magazine nine-day wonder diet; it means your normal well balanced diet with a control placed on the number of calories consumed. It's not necessary to carry a slide-rule and make a rapid calculation with every forkful. Just estimate your daily need and pass up or accept the bread, potatoes, and pie a la mode accordingly.

Although overweight is the most obvious, it's not the only criteria of good conditioning. Many men are so constituted that no matter what shape they're in, literally, the scales will obligingly show the same poundage they showed in college; therefore diet alone is not enough.

Proper exercise may be defined, as with diet, as the amount required to keep the body in tone and the muscles from becoming flabby. And again, the amount and type will vary with the individual. But with exercise it's regularity that counts; far, far better to do a little something every day than save up for one strenuous period every week or 10 days.

THE AVERAGE OFFICER usually has a choice of activities available. Perhaps he'd rather play golf than badminton, but when time or lack of facilities preclude golf he's wise to turn to a substitute rather than give up all endeavors. If it's not possible to make a compromise somewhere among golf, tennis, riding, swimming, squash, handball or badminton—well, there's always the lost art, walking. Probably one of the best exercises to keep in condition with, walking requires no special facilities, can be worked into the tightest schedule, and certainly expends very little effort. A brisk five mile walk daily will furnish adequate exercise for almost anyone; any activity that keeps the muscles in tone, the heart in shape, and elimination functioning is satisfactory.

The benefits to be derived from an increased interest in the above simple verities are too numerous to be tabulated. Here are a few, however, of the more salient selling points. The efficiency, mental health, and reflected good disposition is always apparent in the clear-eyed, well conditioned officer. His heart and blood vessels are operating more efficiently; the heart is able to pump more blood per stroke, and thus do more work with less effort. It beats fewer times per minute, and after hard work returns more rapidly to normal speed. There is an increase in the number of capillaries, and a corresponding increase in the circulation of the blood to the muscle cells. The better circulation the muscular system receives, the better is the fuel supply, and at the same time the system is better able to eliminate fatigue products. The respiratory system functions more efficiently, as fewer inhalations are needed per minute, and

thus the vital capacity is increased. The muscular system increases in size and power, the officer becomes more skillful, and his capacity for work is increased with his greater endurance. The nervous system is trained to coordinate the other body functions more effectively. Proper exercise increases the man's zest and enthusiasm and helps to make him more sociable and cooperative; his mental health is sounder.

As a result of the experience of the past war, all branches of the Armed Services have recognized the importance of physical fitness and are placing far greater stress on it than in the past. The Army has established a program of a minimum of five hours a week devoted to the conduct of two concurrent phases of physical training—a conditioning phase and an athletic phase. The accelerated athletic competition in the All-Navy Championships is one facet of the Navy's post-war physical fitness program.

The program set up by Headquarters Marine Corps also places greater emphasis on physical fitness. The Letter of Instruction on basic training provides for the integration of organized athletics, calesthenics, marches, swimming, and field training to insure fitness for combat at all times. Another Letter of Instruction urges the participation in sports as a form of recreation, and as a means of promoting esprit within a unit as well as leadership development and confidence. Assistance has been given the Commanding Officer in the establishment of an athletic and recreation program by provision for an Administrative Council, Athletic Officers Council, and Sports Committee on the battalion level. These councils and committees, with the Special Services Officer, are aides to the commander in carrying out a well balanced physical fitness program for his outfit.

Through Special Services, Headquarters Marine Corps makes athletic equipment available, either issued gratuitously or at at a greatly reduced price.

ALTHOUGH the Commanding Officer can expect considerable assistance from higher headquarters in the establishment and carrying out of a physical fitness program, he is nevertheless responsible for the organization and supervision of such a program. Naturally the problems will vary with the size, location and facilities available; in larger units the detailed planning and technique of the program can be handled by the Special Service Officer and Unit Special Service Officers. In any case, however, the commander and his unit commanders must supervise the carrying out of the program.

The program can be broken down into two parts: first, physical conditioning closely related to training, such as swimming instruction, hikes, calesthenics and obstacle courses, and second, organized athletics and games of all types to provide the proper balance of exercise. All men should compete in some kind of athletics in order to develop team play, aggressiveness, courage, the ability to think and act quickly, persistance, confidence and the will to win. To insure this the training and voluntary periods must be closely integrated.

A variety of sports should be included in the program, so that during regular athletic periods men may make a voluntary choice; competent instructors in all sports included should be available. A good instructor judges the skill of the individual, placing him on teams or in participation with personnel of his own general efficiency. This avoids stifling the interest of either the novice or the skilled athlete, and after a time the participation in spare time athletics will begin to approach the goal of the good physical fitness program.

Obviously, the degree to which such a program may be carried out must depend a great deal on the location, facilities, etc., of the organization. In most cases, for instance, a more complete program will be possible for an FMF unit than for the organization of posts and stations.

FREQUENTLY, because of lack of time or facilities, a Commanding Officer will have plausible reason to deemphasize or ignore the physical fitness program, but it will be to his advantage in the long run somehow to find the time and improvise the facilities. An example of a commanding officer having practically nothing and yet improvising a workable program may be found at the Marine Barracks, Boston Naval Shipyard. There are no major athletic facilities in the Yard itself except tennis courts and bowling alleys; however, a careful survey of military and civilian facilities in the area provided the solution. By utilizing a nearby YMCA and the gymnasium at the Receiving Station in the Navy Building an adequate physical fitness program was carried out. As there were no proper facilities available in this case, there could have been no criticism of the commanding officer for not carrying out a physical fitness program, but as a result of his adoption of outside facilities for the use of his men, the physical condition and morale were decidedly higher than would have been the case otherwise.

As mentioned earlier, the softening influence of our modern machine civilization emphasize the importance of conditioning men. As an officer you have two responsibilities: one, to keep *yourself* in good physical condition at all times, and two, to carry out, when you're with troops, a program that will assure every man of your organization of physical fitness. Physical fitness is a command responsibility; whether platoon leader, company commander or division commander you can directly influence the success of the organization's program. That they may be prepared to carry out its mission, the officers and men of the Marine Corps must *always* be in top physical condition. USMC

The MCROA Charts Its Course

By Maj William P. McCahill

IN ITS SECOND POST-WAR CONFERENCE THE MARINE Corps Reserve Officers Association laid down a firm policy for continued usefulness to its members and the Marine Corps. Based on the recommendation of its National President, Col Melvin J. Maas, the Association "intends to take the lead in actively promoting inter-service cooperation and understanding." This means trying to work together with all regular and reserve components within the framework of present legislation.

When Marine and Navy training planes settled in Chicago during the weekend of January 29th bringing officers of MCROA and of the Organized Reserve a new policy was shaping up, one which would bring MCROA and the battalion and squadrons officers close together. Under a letter from the Assistant Secretary of Air Authorizing MCROA officers to request space on scheduled or training flights MCROA had active cooperation from the Marine Air Reserve Training Command which notified all responsible commanders of the importance of flying Marine officers to Chicago for the Conference where possible. In spite of spotty weather, officers attended from California and Washington, New York and Virginia and from mid-western States.

Both the Director of Reserve and the Director of Marine Air Reserve spoke to delegates and answered questions from the floor during business sessions. Feature of the meeting was the banquet address by the Commandant in the impressive ballroom of the Knickerbocker Hotel's Officers' Club.

Maj William P. McCahill is Executive Director of the Marine Corps Reserve Officers Association. For further information on the MCROA he may be addressed at 1543 Eye Street, N.W., Washington 5, D. C.

Some 200 Marine officers, their wives and the ranking Naval officers in the 9th Naval District were pleasantly surprised to hear Col Maas read a special message from the Commander in Chief, emphasing the importance of the Conference.

"It is a source of great satisfaction to me to realize that despite your many commitments in civil life," the President wrote, "You willingly take time from your business pursuits to meet and proclaim your support of the National Military Establishment. Your comrades in arms appreciate your efforts. As Commander in Chief, I commend you. Very sincerely yours, Harry S. Truman."

Coupled with this was a letter from Secretary of Defense James Forrestal which read in part: "The energy and zeal of citizens such as represented by your Association contributes much to the military posture of our democracy. Your efforts are appreciated and I know that the National Military Establishment can count upon you for wholehearted support through any conditions of emergency or peace."

Secretary of Navy John L. Sullivan wired that "I am confident that in peace the Marine Corps Reserve Officers through this association will stimulate that personal efficiency and readiness which is the mark of the true Marine. America's security depends upon its reserve as well as its regulars. I know you will serve it faithfully and well."

As an evidence of the "cooperation" aimed at, expressions of friendship and cordial regard were received from the Marine Corps League and from the Reserve Officers Association whose merger offer MCROA had declined last year.

Gen Clifton B. Cates in his policy address discussed the allocation of the defense dollar in terms of "relative priorities." He indicated defense was concerned and "must be directed solely against discounting the danger of "one-punch attacks" such as one-way flights but pointed up the need to detect, meet and defeat attacks "perferably close to their points of origin." This requires possession of advanced bases the prices of which "will skyrocket in the opening months of hostilities."

From advanced and floating bases, Gen Cates warned, we must both intercept defensively and attack successfully almost at once and not depend upon high-altitude bombardment to contain the enemy early in any future war.

Using the analogy of deflecting the arrow and disabling the archer, the Commandant pointed out the imperative need of doing this against both air and underwater attack, saying they are "the principal D-day tasks for which adequate regular and reserve forces must be main-

tained in our peacetime military establishments at all costs." This "modest immediate expenditure of effort" offers such high returns that "they should not be neglected in our peacetime preparations."

As in the offensive-defensive against air and underwater enemy attacks, the early seizure of advanced bases for future offensive operations is a priority item which becomes more expensive the longer bases are denied our own forces.

Gen Cates summed up Marine philosophy as relying upon the principle of "first things first" and called upon MCROA to "help the American citizen bear that principle in mind."

MajGen William T. Clement unveiled 1949 Division of Reserve plans in his role of "chairman of the board of directors making his yearly report to the stockholders." He cited "worthwhile gains" in 1948 and pointed to the vote of confidence in the Marine Reserve program given by the President and Secretary of Defense in the recent Executive Order. He gave credit for today's success to "Marines in civilian life who have retained their interest in the Corps."

Today's "dividend" is the largest, best equipped and best trained Marine Reserve in history. The 1949 target is 141,739 officers and enlisted in the Reserve. In July of 1949 the Corps must start adding 16,000 new members to Organized units in order to reach a total of 53,369. This means 79 new units across the country. And this means shortages in armory facilities unless local help is forthcoming. The Reserve Director called upon MCROA to help wherever possible in acquiring adequate armory facilities through purchase or rental. The Conference agreed to help.

THE RESERVES trained during 1948 exceeded the total Corps 1937 strength and bigger goals are ahead for 1949 and 1950. During fiscal '49 Gen Clement expects that more than 3,000 officers and 34,000 enlisted ground troops will receive organized unit training in addition to individual training for volunteer reserves. He expects to move 4,000 troops of organized units by air to Atlantic and Pacific training camps.

He discussed the recent Non-Disability Retirement Law and outlined plans to step up Volunteer Training Unit programs in Reserve Districts. Promotion of reserves will parallel that of the Regular service, the number promoted depending upon vacancies in the mobilization requirements of the Corps. His estimates of officers eligible for "consideration" in the coming year includes 36 to colonel, 74 to lieutenant colonel, 1,000 to major, 4,500 to captain and promotion of second lieutenants after three years satisfactory service in grade.

Pointing up weaknesses or "liabilities," the Director called for more officers in the Organized Reserve, more Class V specialists, more armories and broadened correspondence courses for enlisted NCOs.

In the business sessions during two crowded periods presided over by Lt James Butterworth, president of the Chicago Chapter and Conference Chairman, policy matters were discussed and recommendations and resolutions approved. Major decisions included a membership campaign and additional chapters in cities not having MCROA units and reelection of the present National officers and Executive Council for 1949.

A Board of Directors was elected, including officers from each Reserve District with the exception of the 12th and 6th which will be filled by the National Council. Board members are Col Joseph P. Adams, 13th; Lt William Godbey, 11th; Col Victor A. Barraco, 8th; Lt Butterworth, 9th; Col Edmund Buckley, 4th; Maj Julia Rockefeller, 3d; LtCol Ira J. Irwin, 1st and Maj James Webb, 5th.

THE CONFERENCE AUTHORIZED yearly award of a MCROA Honor Medal to any civilian American making an outstanding contribution to the Marine Reserve; called for inclusion of honorary retired reserve officers in the benefits of non-disability retirement; asked for additional fall and winter active duty training for reserves; endorsed the legislative program of the American Federation of the Physically Handicapped and called upon Marines everywhere to employ qualified handicapped workers wherever possible.

The officers voted against any plan which would "take from the Marine Corps its function as a combat component of the armed forces" and declared Marine Corps aviation to be "an integral part of the Corps." As a political measure, MCROA continued its insistence on "Civilian direction of our military establishments, including military policy-making." Pay provisions of the Hook report were approved. The Pacific War Memorial was "whole-heartedly endorsed."

BrigGen Karl S. Day was toastmaster at the luncheon and Warren Brown of the Chicago *Herald-American* performed the honors at the evening dinner. A featured attraction was a round table discussion on the Future of the Marine Corps. Col Chester N. Fordney, USMCR, Retd., was moderator.

The panel included Capt Jim Hurlbut of NBC, first combat correspondent on Guadalcanal; W. K. "Bus" Holt of the Chicago *Tribune*, former aviation Marine PRO; Frank Smith of the Chicago *Sun-Times*, who served as a war correspondent with the Marines at Cape Glouchester and Okinawa and Lt Albert Rackham, RNVR, who discussed the Royal Marines and his impressions of our own Corps.

General concensus was that the Corps had a job to do, that the American people would not permit the Corps to be destroyed but that constant vigilance and continued

Gen Clifton B. Cates, CMC; Col Melvin J. Maas, National President, MCROA; MajGen William T. Clements, USMC, Director, Division of Reserve; and Lt James Butterworth, USMCR, discuss post war plans during meeting in Chicago.

civilian liaison was necessary if this situation was to continue.

In the report of the Executive Director this writer outlined administrative and organizational achievements during 1948. I said that the cooperation existing between MCROA Headquarters and Marine Corps Headquarters has been of the highest degree. We have enjoyed the confidence and respect of the officers with whom we have dealt on matters of mutual interest and they have had similar respect and frankness from us. We have not always agreed but there had always been an opportunity for a frank and full expression of opinion, in the family. We kept our differences to ourselves until they ceased to become differences and by the Democratic procedure of compromise became mutually accepted programs in most instances.

I believe that in 1949 and '50 MCROA, a professional guild of Marine Corps Reserve Officers, will move forward in its announced mission to secure for the Corps and for Marine Corps Reserve that which they may be unable to secure for themselves. This will be done through Chapter effort in the 40 cities where units are formed or forming and by work of the National Council. We shall continue to foster the advancement of the professional and technical skills of Reserve officers in the Marine Corps and the interest of the Corps in its reserves, to speak for Reserve officers before the committees of Congress on matters affecting the Corps, particularly in relation to personnel legislation and to represent and assist individual members at Marine Headquarters.

If our reserve forces are as essential to the nation's security as the ranking officers speaking at the MCROA Conference indicated and the civilian heads of our Government implied in their messages then it is necessary for responsible reserve and regular officers to reexamine their attitudes toward and contributions to the Marine Corps Reserve. In this program MCROA stands prepared to render continued assistance in the possible stormy days ahead. USMC

In Brief

A new radar device to permit jet bombers to make all-weather approaches and landings in greater safety and with fewer delays has been announced by General Electric. The sets may be installed anywhere up to two miles from the airport control tower, and by means of a unique new remote system, the radar picture will be presented to the traffic controller in the tower. The picture will show the exact position and flight path of every plane within a 30-mile radius of the airport. The new device is the first to employ "moving target indication" as a standard production feature. This eliminates fixed objects from the picture, presenting only moving aircraft.

Active duty training for all 111 ground units of the Organized Marine Corps Reserve will be provided in bi-weekly periods at regular Marine Corps posts and training centers beginning 4 June. About 28,082 officers and men of those units, located in 105 cities of the United States and Hawaii, will participate. That figure represents nearly 75 per cent of total strength. Training of eastern reserve units will be concentrated at Camp Lejeune, N. C., Little Creek, Va., and Quantico, Va.. Western units will assemble at Camp Pendleton, Oceanside, Calif. The Hawaiian unit, a rifle company, will train in Hawaii.

The Army has announced its principal maneuvers and training exercises for 1949. Presently amphibious and arctic exercises are on schedule. In May command post exercises are on tap. In June it will be airborne training and in August West Point cadets and Annapolis midshipmen will engage in Camid IV. In October combined exercises and demonstrations are scheduled. Arctic training which will run into 1950 is planned to begin in December.

Extension of enlistments of personnel serving one-year enlistments (USMC-V) is prohibited according to Marine Corps Memorandum 13-48. However, men serving in this category may, upon completion of the full term of their obligated service, reenlist in the Regular Marine Corps for any authorized term of enlistment, if qualified in all other respects.

The Marine Corps Recruiting Service did not accept any male recruits for general duty in the regular service during March. Suspension of the quota for recruits was attributed to increased reenlistments, decreased "normal attrition," and the general reduction in strength announced 3 February by the Secretary of the Navy. However, procurement of 18-year old recruits for one-year service continued. Recruitment of Women Marines remained open, although actual enlistments were controlled in order to form successive platoons of 50 for recruit training at Parris Island.

Portable teletypewriter equipment so light that a parachutist can carry it on a jump has been developed by the Army, the Signal Corps announced recently. The three units, teletypewriter, accessory case, and power supply. weighs a total of 116 pounds as compared to current equipment that weighs 225 pounds. The new portable teletypewriter is but one-fourth the size of the old, has 300 fewer parts, is considerably stronger and consequently requires less maintenance. The new equipment can transmit and receive messages 66 per cent faster than existing types and will operate on both wire and radio circuits. It is waterproof and could, if used in amphibious operations, be floated onto a beach.

Tours of duty for Marine Corps officers and enlisted men overseas or afloat shall be two years, except for personnel assigned to duty in the 17th Naval District or Argentia, Newfoundland, where tours of duty will be for a period of 18 months, Headquarters, Marine Corps, has announced in Marine Corps Memorandum 3-49. The normal tours of duty at any one station or assignment for all personnel within the United States will be for a period not to exceed three years, and where practicable, not less than two years.

An underwater sound reference laboratory is to be built at Orlando, Florida, for testing and evaluating submarine and anti-submarine underwater sound equipment. Plans for the permanent installation are being completed by the Bureau of Yards and Docks. Congress has appropriated $1,120,000 for the project. The new laboratory will provide year-round facilities for solving underwater sound measuring and calibration problems as they arise.

New gilt buttons for Marine Corps enlisted blue uniforms have been received at the Depot of Supplies, Philadelphia, and will be issued as the wartime supply of gilt buttons is exhausted. The wartime buttons upon being polished lose their thin gold plating and expose a base metal of reddish appearance. The new buttons will retain a desirable yellow gold appearance when polished. The thin gold plating on both old and new buttons is for the protection of the fabric of the coat during its storage life.

Transportation of dependents to the Pacific Ocean Areas cannot be effected until the necessary clearance has been obtained from the overseas area commander, personnel of the Marine Corps are advised by Marine Corps Memorandum 1-49. Normally this clearance cannot be obtained until the individual has reported to his ultimate duty station. Dependents of personnel assigned to the Fleet Marine, Force Pacific, should not proceed to San Francisco, Calif., (unless in possession of sufficient funds to cover living expenses until transportation overseas is authorized) until notified by the Commanding General, Department of the Pacific, Marine Corps.

Marine Air Reserve Training Command attendance during the second annual maneuvers was 38.8 per cent above that of 1947, according to a recently released official report. Total flying time was 54 per cent higher, and aircraft availability increased from 89 per cent to 92 per cent. Current strength is 92.23 per cent of authorized strength, and approximately 3,500 members mobilized last year for active duty maneuvers at Cherry Point, North Carolina, and El Toro, California, principal training bases for Fleet Marine Force Aviation.

Lightweight fire-fighting clothes made of aluminum foil laminated to a cotton backing have been developed by the Air Materiel Command. The suit employs the principle of heat reflection and is for use by fire-fighters who are exposed to very high degrees of heat; it is not to be worn into the flames. Material in the foil laminate weighs approximately three pounds, and the entire suit, complete with helmet, weighs under eight pounds. It consists of trousers, zippered jacket, the foil-covered rigid helmet, gauntlets, and spats zippered over ordinary rubber overshoes.

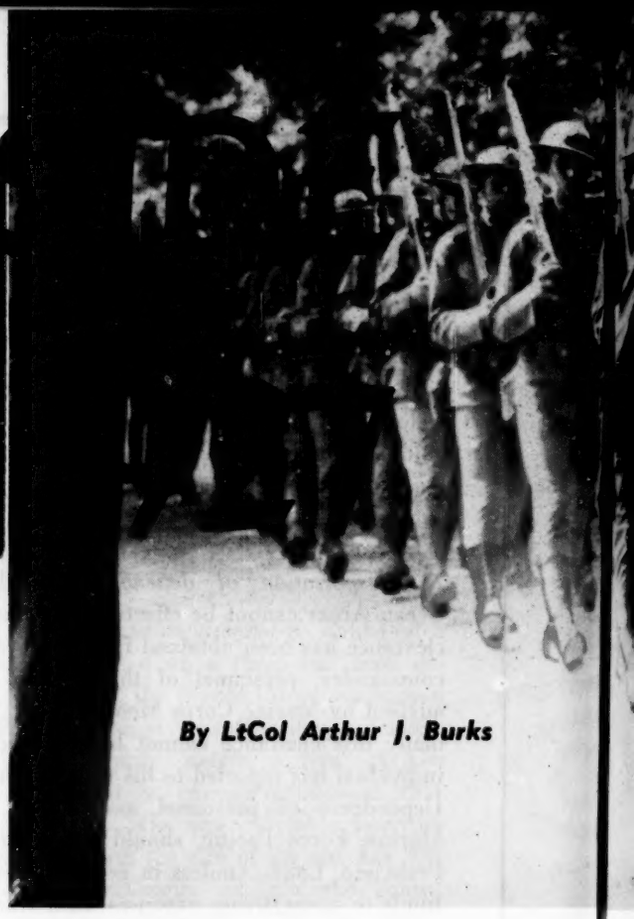
A sea-going rocket laboratory from which 14-ton V-2 missiles can be sent aloft has been announced by the Navy. The vessel, the converted seaplane tender *Norton Sound*, will have the basic mission of widening the horizon of upper atmosphere research through rocket firing experiments conducted at sea in safe, isolated areas at various latitudes, extending from the equator to the polar regions, that are not feasible for land tests. The *Norton Sound* is the first Navy ship specifically equipped for the main purpose of firing big rockets. Besides handling the German V-2, she can fire the Aerobee, an experimental American rocket for high-altitude research, and can launch balloons for cosmic-ray research in the upper atmosphere.

The Navy Filing System will be used by the Marine Corps upon publication and distribution of the Navy Filing Manuel (5th Edition). All commands are to comply with the provisions of the Navy Filing Manual prior to 1 January 1950. In this connection Headquarters, Marine Corps, will begin the change over on or about 1 April 1949, according to Marine Corps Memorandum 4-49. The refiling of correspondence filed under another system is not required. Suggestions and comments as to the expansion of the Navy Filing Manual are solicited and should be addressed to the Commandant of the Marine Corps.

The Freedom Train Detachment, 26 marines and a chief petty officer of the Navy's Medical Corps, have been individually commended by National Director J. Edward Shugrue of the American Heritage Foundation for "discharging magnificently one of the most demanding and unusual assignments ever given to any branch of the Armed Services." The Freedom Train Detachment, which enjoyed only brief respites on its 16-months' tour of the 48 states, assisted in receiving more than 3,500,000 visitors in 324 cities.

Forty-three ground units of the Organized Marine Corps Reserve have been authorized to exceed their T/O enlisted strength by 10 per cent to compensate for the understrength of other units and make sure the Reserve attains its authorized strength by June 1949. It was directed, however, that all personnel comprising the 10 per cent excess must be enlisted in the sixth and seventh pay grades.

CHINA



By LtCol Arthur J. Burks

THE TOURING LIEUTENANT OF MARINES HAD HIT THE lotto jackpot at Tientsin, in North China, won eighty "Mex" and was enroute to Mukden, Manchuria, in search of a war. This was in 1927 and the Touring Lieutenant had come to China with the China Composite Expeditionary Force under Col Henry C. Davis. The Touring Lieutenant was adjutant of Maj John L. Doxey's battalion, the cares of which he had left behind him in Tientsin in the capable hands of the battalion's newly appointed executive, one Capt Evans O. Ames.

A fairly well-known officer, BrigGen Smedley D. Butler, commanded all the marines in North China, with LtCol E. B. Miller as his executive officer and a quiet little major named A. A. Vandegrift as assistant executive officer.

The Touring Lieutenant had a good deal. Back in the States he had been one of Gen Butler's aides, but Butler had got away to China without him. When the Touring Lieutenant finally caught up with him again, the General said:

"I'm not going to make you my aide again. You're too fat. But I'll give you leave to get about in China whenever you have money to spare."

The General thought the Touring Lieutenant had writing ability and should get out of the service to utilize it, preferably in favor of the Marine Corps. However, when the young officer hit the Russian lotto at Tientsin for enough to get him to Mukden—if he had to walk

back—and asked for five days leave, a member of the General's staff sent for him and suggested that while he was in Mukden he should get inside Mukden Arsenal, held by Chang Tso-lin, and get pictures of the Sutton gun, a mortar adapted from the Stokes by "One-Arm" Sutton, capable of hurling a projectile six times as far as the Stokes.

"But I asked for leave for personal reasons," objected the Touring Lieutenant.

"Which," the staff officer pointed out, "headquarters is not bound to grant unless . . ."

So, on his own time and with his own dough, since there was no authority to issue travel orders outside China proper, the Touring Lieutenant was enroute to Mukden with a box camera, a portable typewriter, some letters to *very* interesting people in Mukden, and the urge to fill pages with notes.

First, he had heard that a battle had been fought in Mukden and the streets ran red with blood. Whose? The stories didn't say, but the Touring Lieutenant was anxious to get there and make an analysis and get some pictures — besides those required of the Sutton gun. There was no question that he would bring back the Sutton gun pictures, if he had to take apart, stone by stone, all the walls around the then-largest arsenal in the world, reputedly. When Gen Butler sent a man to do a job the man did it, or he didn't come back, and since the Touring Lieutenant had only eighty "Mex" to start with, he *had* to come back.

The Peking-Mukden passenger train was interesting and modern. It was packed with people. Save for two American Missionary ladies and the Touring Lieutenant, first class passengers consisted of Chinese in long gowns and coke-sniffing Japanese in uniform. All of them crowded around when the Touring Lieutenant stroked the keys of the typewriter, taking down notes that must have been very suspicious to the Japanese. . . .

"A blue heron just flew past my window. Gives me a story idea. I'll invent a Chinese bandit and call him 'The Blue Heron.' He'll trail blood across the land!"

China-side, 1927! It was a rainy day, that first one, as the train made good time toward Shanhaikwan and the Great Wall. A dreary countryside, too heavily populated. Pagodas on high, far hills, leaden skies, and dark clouds like Chinese artists' scrolls. No trees to be seen. Women working in the fields, sometimes hitched with a cow, a scrawny horse, a dumpy mule. Villages of mud, their streets and the sides of the huts open sewers. People, half-naked, hungry, living standards far below any ever dreamed of in the United States.

It seemed odd that he could get steak and French fries, served by Chinese, aboard a Chinese train. China was alive with contradictions. He thought back to his arrival, back to the night when, aboard the famous *Chaumont*, his outfit, which had been detoured to Olangapo for a month while quarters were being found in

China, had approached the mouth of the Whangpoo. He remembered the siren warning the junks and sampans away, of watching the "slop-eaters" next morning while awaiting a ride into Shanghai. Of two weeks in Shanghai, and wondering how people could live packed together as they were there, of the Bund, the Customs Jetty, and self-conscious, beautifully dressed American, French, and British ladies in rickshaws, which were *definitely* not designed for ladies. Of his own first ride, of running five "Mex" into thousands one night at a roulette wheel on Bubbling Well Road, and coming away owing the five. Of hearing of wars in North China, with thousands of heads hanging in baskets along the streets and their intersections in Chang Tso-lin's bailiwick. Of unloading from the *Chaumont* and reloading on the *Henderson*, of the ride on the muddy Yellow Sea to the lowlands at the mouth of the Pei Ho, Gulf of Pe-Chihli. Of marines loafing on the deck and singing one of the interminable verses of:

"Oh, we all came out to China on the *Chaumont*
Oh, we all came out to China on the *Chaumont* . . ."

Only Col Davis had managed to find anything in English that rhymed with *Chaumont* and the song didn't "scan," but the marines didn't care.

THE LANDING and unloading began on orders from Gen Butler, who was already at Tientsin, and continued for most of the night. High waves were running in the shallow gulf near shore—which still was too low to be seen—and lighters rose and fell through an altitude of forty feet or so. It was dangerous business, handling cargo. But the marines laughed, sang, cursed, and handled cargo. Lighter after lighter went off through the murk. Then, the Marine officers went ashore, winding their way through the channel at the mouth of the river in a minesweeper. The Pei Ho river was "The River of Seven Bends," curving so much back and forth upon itself that you could look away to the right and see the sails of sampans approaching from the right front, straight across the low-lying, evil smelling land. Taku Forts were visible through the murk, still in ruins so people would remember 1900 and the Boxer Uprising.

The marines were eager to get ashore, until they saw where they were to camp. Oldtime warrant officers and non-coms shook doleful heads. Some commented as follows to the Touring Lieutenant:

"I've been on many expeditions. They're always a mess. No expedition staff ever learns from the experiences of previous expeditions."

The first encampment of that outfit used the following identification on its official letters, "Pei Ho on the Hai Ho," because Chiaochuchwang, the right place name, was too long. "Ho" means river, so the names chosen meant "North River on the Sea River," which was close enough, since the Pei Ho at Tientsin became the Hai Ho near its mouth.

Headquarters was in a compound belonging to Standard Oil Company, too small to handle even Regimental equipment. Behind that compound, with a stone building or two in it, were native villages which were no temptation at all. They *smelled!* There was a station nearby, the Peking-Mukden Line, which ran through Tangku, downriver a mile or so, and curved to Manchuria. Tangku was seat of a small force of Annamites. Later Marine officers discovered that British had interests there also, and of course, a club, where officers who became associate members learned "The Song of the Froth Blowers," and Capt Ames became very much in voice. The pool tables had holes in them, but the club was an oasis in a sea of strangeness.

A small Aero Squadron, commanded by Maj "Cocky" Evans, to which were attached such worthies as Lt Sample, Capts Moriarity and Arthur H. Page, was assigned part of the encampment. The ground forces of this group got busy clearing the airfield, while Chinese unloaded lighters, chattered, couldn't be instructed what to do, yet somehow managed to haul heavy motors, stoves, gasoline drums, desks, tables, chairs—all manner of expeditionary gear, including weapons, naturally—ashore.

The marines laid out streets, foraged for boards for walks—and rain didn't help. Tents, bedding, clothing, were soggy, and the heads weren't erected fast enough or enough of them. A Chinese came from somewhere and began erecting a *pung*, a mat shed in which to do laundry. Other Chinese approached with painted women in covered, horse-drawn carts, and were chased away. The marines at the time were empty of romance—and the carts came up through the cemetery anyway! Those mounds of various heights looked gloomy to the marines. Besides, planes had to land and take off right over the cemetery! The Pei Ho was so muddy it could have been picked up in chunks.

Somehow the Boeings, DeHavilands, and one Loening amphibian, got ashore. Order appeared out of chaos. The Touring Lieutenant, entirely uninterested in tours because he had prickly heat two inches high—more or less—all over his body—laid out the tent city by compass, doing what he believed to be an excellent job. From Tientsin came word from Gen Butler to keep things moving. He wanted to be flown from Tientsin to Pei Ho on the Hai Ho as soon as a plane could take off and fetch him, and he wanted the new encampment to be ready for inspection. A queer thing—almost *nobody* said, "yes, sir, *but*" to this particular general! The camp would be ready for inspection.

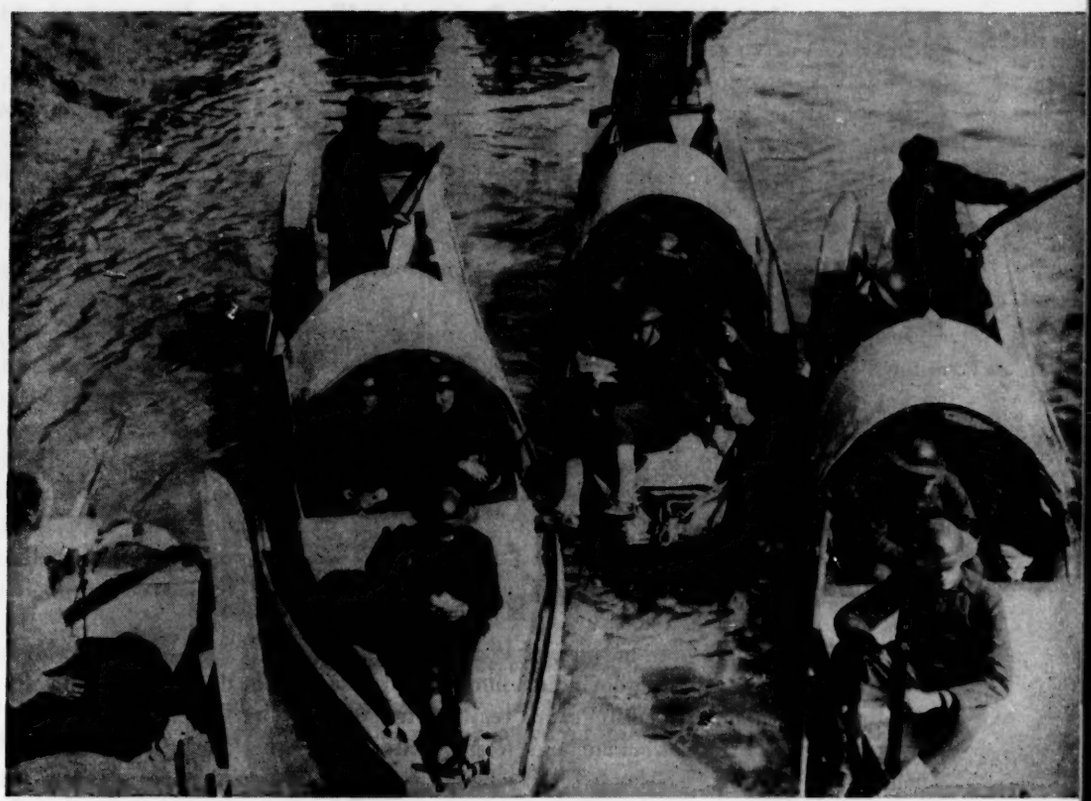
And it was. Before dark that first night tired men and officers crawled under the tents which were secured by mighty strongbacks, to sleep, they hoped, until

reveille. They were proud of themselves. But wind and rain was a jester. Before morning the whole camp had become a quagmire, strongbacks gave up the ghost, tent decks floated right out from under tents, and iron bunks sank to the springs. No more thoroughly miserable a group of marines ever tried to sleep anywhere.

Next morning it had to be done over.

Looking back, the Touring Lieutenant, just the same, was proud he had had a part in the landing.

Maj "Cocky" Evans kept his people busy, too. In almost no time planes were ready to try things out. One pilot, whose name the Touring Lieutenant could not remember, was a first sergeant, reputedly one of the Corps' best pilots. He was one of the first off the Chiaochuchwang field, after "Cocky" Evans, that is, who had a perfect right to be first and see whether the field was long enough. It must have been four days after the rain and wind which had all but torn the camp apart.



Going ashore in sampans isn't perhaps the present-day marine's notion of how an amphibious landing should be made, but they were all Butler's force had.

The First Sergeant pilot took off in a Boeing. A puff of wind played under his wings, and he straddled a gasoline drum which should have been somewhere else. But he got off—his wheels pointing, not fore and aft, but to starboard and port. Here was a certain crash landing and the pilot didn't know it. Another plane took off right after him. The pilot of the second plane signaled with a tire that his landing gear was on the blink, that he would have to crash land in the Pei Ho.

The First Sergeant did not hesitate. He must have known that if he thought for just one moment what it would be like to get dunked in that slowly flowing cesspool, he would land on the field instead and take his chances with Gabriel.

The battalion adjutant was just leaving the compound when the Boeing circled above it. He looked up and noted the odd juxtaposition of the wheels. The First Sergeant had already had the signal to land in the river and was coming down. Apparently it didn't make any difference, just then, whether he landed with or against the current. The riverbank wasn't a hundred feet away, but the adjutant had to run to see the crash landing. The First Sergeant stalled in as much as he could. When his cock-eyed wheels hit the water the Boeing nosed over with such a sudden crash that the pilot, catapulting from his pit, wasn't even visible—until he broke water and began to swim and spit and curse, thirty feet ahead of the sinking plane. The tail of the plane was visible still, when Col Davis came running out, yelling:

"Where's the pilot? Where's the pilot?"

"Here I am, sir," said the bedraggled pilot from the edge of the rickety small dock where he was already directing the salvaging of the plane. "Somebody has to show these Chinks what to do!"

He went on, cursing the grinning Chinese who were helping him.

"Well," said the Colonel, "that's one accident, so the chances that we'll have another are remote."

The Colonel had scarcely got the words out than a lieutenant took the air, didn't hit anything, but lost a wheel when he was twenty feet off the ground. Again came the distheartening signal. This pilot was to hit the river upstream for a change. The lieutenant started down, but didn't like the looks of the river. He came down, almost touched, didn't, zoomed again, and the bank was lined with marines and Chinese. In the river, junks and sampans, their masters sublimely ignorant of the pilot's need for the narrow river, sailed majestically past the encampment.

"I hope we don't have to *shoot* that Boeing down!" said someone nervously, when the pilot zoomed a second time—and a superior signaled him to hit the water next time around and no fooling about it.

The Boeing fighter touched the one good wheel and the one that wasn't, to the muddy river. The nose crashed under. Once again nobody saw the pilot until he appeared ahead of the plane, swimming. But anyway, he was *swimming!* There were expressions of relief, a few of them profane.

Delegations met the young officer and pulled him ashore. He was mad, and nobody blamed him. When he was catapulted over the top wing of the Boeing, clearance hadn't been what he had every right to expect. His nose had been the smallest fraction of an inch too long and the trailing edge had leveled it off as he shot forward. He talked as if he had adenoids!

As the train pulled into Shanhaikwan the Touring Lieutenant swore softly, remembering more incidents at Chiaochuchwang. Of how he himself had ridden once in the Loening and of the pilot going into some banks and slips before, at 5000 altitude, he remembered that the adjutant wore no parachute and wasn't belted in. Then, very carefully, he landed the officer who was hunting a war.

The Loening had been tested carefully. It had all the imposing appearance a plane should have which was destined to bring Gen Butler down from Tientsin. Arthur H. Page, captain, had been selected by Butler himself to fly the general to Pei Ho on the Hai Ho. Page did a lot of taking off and landing with the Loening, but gave everybody, including "Cocky" Evans, heart failure when it looked once as if he were going to land on the field without letting down his wheels. A risk of that kind could not be taken with Gen "Smed" Butler —as LtCol Archer always called the "Fighting Quaker"— so a DeHaviland eventually became the chariot of the Commanding General.

Came the morning of the day of inspection. Maj Doxey and his adjutant, as well as Capt Ames, walked around looking at their camp until they wore holes in the duckboards. "Cocky" Evans did the same on his side— which was toward the cone-shaped grave area.

Page had taken off for Tientsin without a hitch. The General was due at ten o'clock, which of course called for early reveille, so people could stand around longer and get in some extra shining licks. The ground was wet, and when the sun came out it boiled and parboiled the newcomers to the Celestial Kingdom.

Well, there came the DeHaviland, but it didn't shoot a landing. Instead it went up to about two thousand and circled. Beside his adjutant Maj Doxey said:

"Dollars to doughnuts the general is putting a compass on the camp! What'll you bet we don't have to rip it down and rebuild?"

Nobody took the bet, which was five dollars. Nobody bet against a sure thing.

The DeHaviland nosed down. The long way of the field was past the tents of the Aero Squadron, in the direction of two stone buildings belonging to Standard Oil. To the left was the laundry mat-shed. As Capt Page eased her in over the river "Cocky" Evans said:

"Too fast! He'll overshoot!"

The wheels of the DeHaviland were still ten feet aloft when they should have been on the ground. Page was not nervous because he had the general aboard; Page simply wasn't the nervous type.

The DeHaviland ended with the propeller poked into the mat-shed of the Chinese laundry, and Chinese began boiling out in all directions to evade the foreign dragon, while horror gripped the onlookers and everybody raced across the field to pull out the survivors.

They arrived as pilot and passenger crawled out of the plane.

The General seemed unconcerned. He glanced idly at the mat-shed and the position of the DH, then looked at Page:

"A little close, wasn't it! You'll kill yourself some day, Page! Do it when I'm not with you! Doxey, your camp is cockeyed with the compass. Rip it down and rebuild!" He looked at the Touring Lieutenant, whom he hadn't seen since California, and said: "I'll bet you laid out the camp! Don't think I'm going to make you my aide again, you're too fat! But I'll give you leave. . . ."

There was little reason to inspect a camp that would be out of existence an hour after the general left, but the General was never one to miss out on an inspection. Almost nothing was sufficiently polished—thus tradition was upheld!

The Touring Lieutenant was approaching Shanhaikwan and the Great Wall, where he had to change trains, and money. There eighty "Mex" became 800 Manchurian dollars, and the Touring Lieutenant felt as if he had a tremendous bankroll.

Entrance into Manchuria, through the ancient wall which crawled leftward over the hills into the heart of China, was an event. Outside the wall there was a subtle difference, and Marines in Tientsin seemed a long way off. There was some delay inside the wall and the Touring Lieutenant thought back to Tientsin, and the Palace of Prince Ching.

Doxey's battalion had been transferred to Tientsin, where Uncle Sam had rented the palace of one of the important princes of the late Manchu regime, a gentleman who had had a hundred concubines. Marines quartered in and around the walled palace just off Woodrow Wilson Road complained bitterly because the concubines

Gen Butler had a fetish for orderly camps; he would survey them from the air with a compass to make sure tent rows were exactly right. If they were off the camp had to be torn down and rebuilt.

had vanished. After the tents, the palace, servants' quarters and brick outbuildings, were marvelous. A cleaning up job had been indicated. The palace, a sprawling affair, the broad winding stair, replete with mirrors, was a furnace during the "middle *fu*," or "hot time of the year." Tremendous tapestries still hung over the high windows. The attic was filled with rare woods, furniture, porcelains, cloissonne, bronze, etc. The compound was a maze of walks, rookeries, and goldfish ponds. Marines lived in rooms, strolled on walks, mused over goldfish ponds in which fish were more than plentiful, which had last been the especial delight of Prince Ching's concubines. It was, *possibly*, a new role for marines.

The famous Boy Emperor, "Henry" Pu Yi, lived in the Japanese Concession in Tientsin, quite unaware of the role he was yet to play in China's history. The Touring Lieutenant had arranged an interview with him, and with Chang Tso-lin, but Gen Butler nixed both interviews because they might look, in the States, as if the General were favoring one side or the other in the civil war of the time, or pulling for a restoration of the monarchy. The Touring Lieutenant also arranged for an interview with Chang Teh, who was the Last Chief Eunuch of the Manchu Court and who grafted 13,000,000 *taels* (between seven and eight million American dollars) during the three years he held the job of Chief Eunuch; Gen Butler gave some brief study to the political aspects of *this* interview but could see nothing in it that would jeopardize the Marine Corps position in China, so the interview was held! It was published 19 years later.

Principal interests of Marine officers at Tientsin were beheading expeditions and lotto playing, off duty. They were always hearing that anywhere from ten to a hundred coolies were to be beheaded at a given time in a given section of Tientsin. They always grabbed rickshaws and ran races to the area, nobody really wanting to see such gruesome executions, probably; but they never saw one. The reports were always wrong, or the executions had already taken place somewhere else.

There were trips to Peking, of course, and on one special trip the Touring Lieutenant managed to get into that part of the Forbidden City closed to tourists. Friends in the right places proved very useful, especially in China.

It was on that fact that the Touring Lieutenant was now basing his success in Manchuria.

The train began to roll on. To right and left, right as far as the shore of Liaotung Gulf, were the fields which, during summer, grew the luxuriant *kao liang*, "tall grain," which in Manchuria took the place of rice. When the tall grain was in flower banditry was rife, and to go into the fields was to lose one's life or money or both. People who rode the trains at such times took care never to leave the depot. It was said, then, that during the flowering of the *kao liang*, a man on horseback could ride from the border of Korea to the Great Wall without being seen.

The Touring Lieutenant reached Mukden at night.

He spoke no Chinese, knew of no one who knew English. But he had a wholesome respect for the Chinese grapevine. He had letters to several people, among them one F. S. Geldart of the British-American Tobacco Company. But where, in that huge, mud-street city, to find the B.A.T. headquarters he had no idea.

There was the usual rush of rickshaw coolies about the Touring Lieutenant at the Yamato Station—odd station name for a "Chinese" province!—and he got into one of them with his suitcase. The coolie started off as if he knew exactly where he was going. The Touring Lieutenant tried to ask him where he thought he was going, but the coolie merely chattered and stepped out faster. He was afraid to slow down, apparently, lest his fare jump out.

The Touring Lieutenant sat back, there seeming nothing better to do, enjoyed the rain in his face and tried to tell something of the city by the signs on buildings. He could make out little, even of the "English" signs, though "gastronomical depot" made him think vaguely of food and so might refer to a restaurant.

It was a long ride. The coolie stopped, pointed. There was a sign over a gateway to a courtyard. In English the sign said:

"Property of the British-American Tobacco Company!"

The Touring Lieutenant had not shown his letter to the coolie, who couldn't have read it anyway. How had the coolie known? No telling, but a "boy" came out, told the Touring Lieutenant that all the B.A.T. boys were attending a party, but he, the Touring Lieutenant, was expected! How come? He was taken in, fed, put to bed—then wakened later by his host and made welcome.

The Touring Lieutenant had five days leave. It took four of them to get into and out of the Arsenal with pictures of the Sutton gun. Even so he managed to visit the Tung Ling tombs, remembered a sign just outside them which said, "No nakeness aloud!" and tried to take a picture of the home of Chang Tso-lin, only to find himself with half a dozen bayonets in his face, and guards making it clear that Chang Tso-lin's house was not to be photographed. The bayonets appeared on the picture when developed.

Well, where was the war in Mukden which had caused the muddy streets to run red with blood? Nobody in Mukden had ever heard of it. However, the day before his return, the Touring Lieutenant heard that the marines in Tientsin had somehow got caught between lines of battle and all but wiped out! Once again streets ran red with blood—this time the streets of Tientsin!

But when the Touring Lieutenant got back to Tientsin, just in time, with pictures of the Sutton gun—and five torn "Mex" in his purse—nobody in Tientsin had seen any blood whatever.

The Marines made but one show of force in Tientsin, during that phase of the disturbance which had caused them to be sent to China. They were ordered to put on a drill show at Race Course Road and it fell to the Touring Lieutenant to perfect a whole battalion in silent manual, both halted and on the march. It was quite a show.

When the Touring Lieutenant had been very new in the Corps he had heard how oldtimers prayed every night for assignment to the Legation Guard at Peking, how that the waiting line was so long a man tripped on his beard before he got a chance at the prize post in the Corps. He had never expected to make it himself, but he did—he spent one night with the Guard, and ate breakfast in the NCO's mess, where he had coffee that would never be forgotten, and looked at pictures on the walls which went back to the very earliest days of the Corps in China. He saw worn places, in another tour, in the cobblestones of the Summer Palace, which people said had been made by the guns of Allied troops during the Boxer Uprising. He saw where a handful of marines had performed miracles with the columns which marched from Tientsin to the relief of the foreign legations, 1900. It was a nostalgic business. He had met oldtimers, including Butler, a captain in 1900, who had been with the relief column. It didn't take much imagination to hear the shrieks of the fanatical Boxers, when the relief was fighting its way into Peking, as they flung themselves straight into foreign gun muzzles, convinced by their commander, Prince Tuan, the renegade Black Prince, that no foreign bullets would slay them. Even when the dead were piled high, they didn't believe it, and kept on piling their own dead higher.

CHINA WAS REDOLENT of Marine Corps history, but the Touring Lieutenant, who hadn't found a war anywhere, either in Shanghai, North China or Manchuria, was about to return, disappointed, to the United States. China had become too peaceful. In all probability none of the excitement of the days of 1900 would ever come again! And even if it did, the Marines would probably not get a crack at it!

Gen Butler was really having a good time. One day he was presented with "The Umbrella of 10,000 Blessings" by a delegation of Chinese. He made a speech which was duly interpreted to a vast crowd of listeners. He spoke feelingly of the days he remembered, when he had entered burning Tientsin with the marching forces from the direction of Taku. He *did* notice that some of his hearers were somewhat embarrassed, but did not know until afterward that many of those who had honored him with the Blessing Umbrella, had been *Boxers* in the days he was orally glorifying, and had done their level best to kill off all the marines they could! The laughter, when the matter was explained, was a little uncertain. USMC

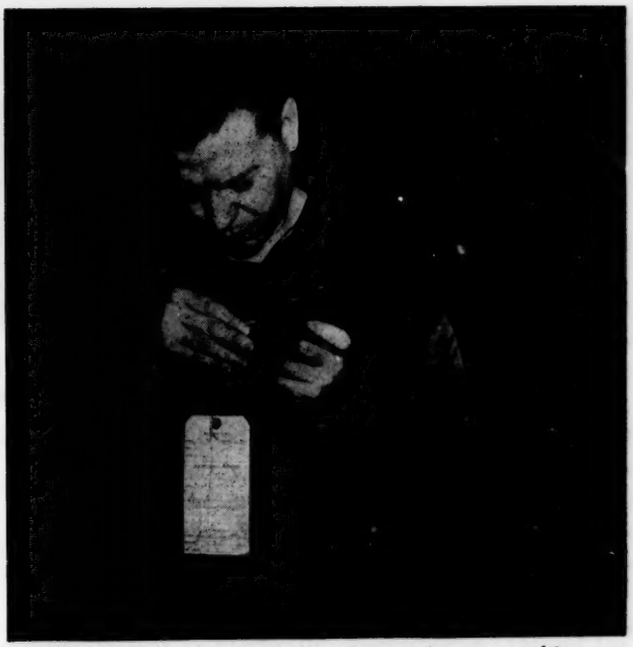
Inspection of Small Arms Barrels

By MSgt Robert E. Voss
Photos by Sgt Charles R. Strathman

AS PER INSTRUCTIONS CONTAINED IN THE MARINE Corps Manual it is the responsibility of all officers and senior noncommissioned officers to inspect the condition of the barrels of our basic small arms weapons whenever the occasion warrants. Because the results of these inspections seem to vary constantly it would seem that no common guide is being used. Habitual discrepancies include variance in terminology used in describing defects, failure to recognize a defect as one, classifying the defect under the wrong heading, and over-estimating or under-estimating the imperfection once it has been detected. Although experience is imperative before one can become adept in the art of inspecting barrels and although a beginner may not be able to find all of the defects, it is important that the inspector should be able to list and classify correctly the imperfections noted.

There are perhaps three basic reasons for periodic inspection of barrels. The most important is the safety of the individual using the weapon. Defects such as bulges, bends, and cracked barrels may cause injury to the firer if the weapon is kept in use. Secondly, such faulty conditions as pitting and gas erosion seriously effect the accuracy of the weapon concerned. Lastly, it is a means of supervising the organizational maintenance for which the using arm is responsible.

Probably the greatest reason for the failure to detect defects is the method or approach used in inspecting. It must be remembered that the light rays pass through the barrel in a line parallel to the axis of the bore. Pits, bulges, and cracks can be seen because they lie below the path of the light rays and show up as dark spots or areas. Before any inspection is attempted the bore should be thoroughly cleaned. If the weapon has been recently fired, it should be cleaned as prescribed in pertinent Field Manuals. In any event it should be free of any oil, grease, and foreign matter. Oil and grease will cause the light to be reflected within the barrel and consequently defects may be overlooked. Foreign matter will cause shadows which may be noted as imperfections which do not exist. The best light that can be used is sunlight. Artificial light such as bulbs and neon tubes cause glare



The author demonstrates inspecting a carbine from breech end with a barrel reflecting device.

Only half the barrel can be inspected effectively from breech. Reflector is also used to inspect muzzle.

and again the true condition of the barrel is obscured. Inasmuch as the breeches of most of our basic weapons are partially closed and the barrel cannot be unscrewed from the receiver, an aid must be used to reflect the light into the breech end so that the inspector has a means of checking that portion of the bore. Barrel reflectors to be used for that purpose are issued as organizational equipment for basic weapons.

A common error made by many inspectors is the failure to examine the first one or two inches of the muzzle or breech end of the bore. This can be overcome by holding the muzzle or breech (barrel reflector) far enough away from the eye so that the initial portion of those parts of the barrel will not be disregarded. Also some set system should be used so that the bore is checked in its entirety. One method that can be used is to start at the muzzle or breech end of the barrel and inspect half of the distance from each end. In most of our caliber .30 weapons (except the carbine) this means checking twelve inches of the bore from each end. (In the carbine it will be approximately nine inches.) It should be remembered that it is practically a physical impossibility to inspect the entire length of the bore from either the breech or muzzle end. Another aid in noting defects is the tilting of the barrel in different positions toward the light or rotating the barrel slightly. This will allow the light to reflect on different spots within the bore and may show up defects more clearly or perhaps expose some that have been previously overlooked.

INASMUCH as defects should be listed as to their location in reference to the breech and muzzle, it is up to the individual to judge the distance. Although there is no sure fire method to use in computing this, it may aid the inspector if he remembers that in our caliber .30 weapons (other than the carbine) the lands and grooves make one complete turn in 10 inches. (In the carbine the lands and grooves make one complete turn in 20 inches.) Also it may be a help to bear in mind the position of the gas ports. The ports of the M1 rifle and Browning automatic rifle are approximately one and one-half and six inches from their respective muzzles; the port of the carbine is approximately four and one--half inches from the breech. When inspecting from the breech, it may be an aid to know that the chamber constitutes approximately the first four inches of our regular caliber .30 barrels and the first one and three-tenth inches in the carbine barrel. The length of a pit is also dependent upon the judgement of the individual inspector. A thumb rule which may be of help is the comparison of the pit to the width of a land or groove. The distance displaced by a land and groove in the caliber .30 barrel is approximately one-quarter of an inch and the groove is roughly three times the width of a land.

MSgt Robert E. Voss is a small arms instructor in the Ordnance School, MCS, Quantico. A native of Iowa, he has 12 years service in the Marine Corps.

Inspection of Caliber .30 Barrels

OK or No Defects—The bore is free from bulges, gas erosion, pits, etc., and the lands are sharp and uniformly distinct.

Gas Erosion (State location and length of area affected)—This condition is indicated by a dark and rough appearance in the bore. It is found at the origin of the rifling around pits, rings and bulges where there has been an escape of gas around the bullet as it passes through the bore.

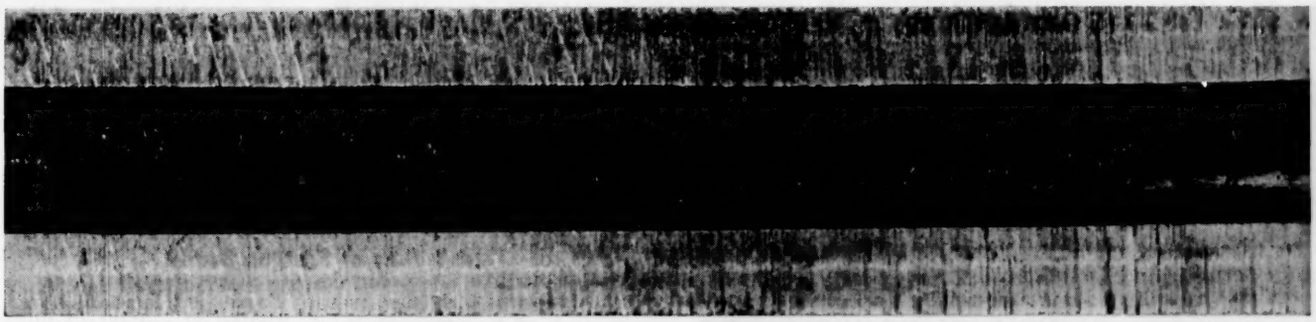
Gas erosion usually occurs at the origin of the rifling and is brought about by the intense heat and pressure of the powder gases at this point. This hot gas washes away the surface of the metal of the lands and grooves much the same as running water does to the adjacent land where its flow in constricted. It is easily distinguished from pitting as it covers the entire circumference of the bore at the origin whereas pitting tends to be localized. This condition is normal and the barrel is serviceable until a breech bore gauge shows it to be worn out.

Tool Marks (State location and area affected)—Tool marks appear in the grooves generally in the form of shallow ridges which follow the twist of the lands and grooves uniformly for the full length of the barrel. This defect is of minor importance and is the result of rough tooling in manufacture. Tool marks occur in new barrels and rifles which have been fired for a year or so are generally free of them.

This condition in no way renders a barrel unserviceable but inasmuch as powder and primer fouling will lodge between these ridges, the bore should be given special care until they have disappeared.

Bent Barrel (State approximate location) — This condition is self explanatory although a slight bend is difficult to ascertain by visual inspection. As an aid, center the bore on a straight line or object running either horizontal or vertical. Then compare the two portions. If the barrel is bent, one of the portions will be smaller. Also when looking through a barrel, it should be possible to see all four lands at the opposite end. If you cannot, the barrel is bent. A barrel with any degree of bend is unserviceable.

Bulged Barrel (State location)—Bulges are caused by an obstruction in the bore which allows the maximum powder pressure to work against one small part of the barrel forcing it outward. In case the barrel does not rupture a bulge will appear. This condition is indicated by a shadowy depression or dark ring around the inside circumference of the bore.



Developed pits are highly irregular in shape and the affected area presents a black and very rough appearance. A barrel with this type pit is unserviceable. Developed pits indicate neglect.

Because it is difficult to detect many bulges, this method may be employed: After the bore is thoroughly cleaned, place a new patch on the cleaning rod. Using a steady pressure, push the rod through the bore. If a bulge is present, the force needed to run the rod through the barrel will suddenly drop as the patch passes the bulged area. The cleaning rod can then be used as a measure on the outside of the barrel to determine the exact location of the defect.

Numerous bulges have been found in the M1 rifle barrel approximately one-quarter inches from the muzzle. They are generally slight and because of their location are often overlooked.

A bulge of any size renders a barrel unserviceable and the barrel should be surveyed.

Cracked Barrel (State location and length)—This condition is indicated by a dark, straight, fuzzy line which usually runs parallel to the axis of the bore. Cracks are generally found at the breech or muzzle end of a barrel. A barrel with a crack of any length is unserviceable.

Cracks are caused by an obstruction in the bore or the fatigue of metals.

Ruptured Barrel (State location) — This condition might be called the second degree stage of a bulged barrel except that the barrel is completely fractured or split open. Ruptures are usually readily ascertainable by external visual inspection.

Scratches (State location and length)—This condition is caused by the use of cleaning rods or other pointed tools. They can be distinguished from tool marks inasmuch as they will run parallel to the axis of the bore and do not follow the contour of the lands and grooves. If they do not break the gas seal, they are of minor importance. However, a deep scratch will tend to pit if the proper care is not exercised.

Slight Pits (State location and area affected)—This conditions covers a range from pits which are minute and present a dull and slightly roughened appearance to indentations which look like small holes in the metal and present a black and roughened appearance. This condition may occur on the lands or in the grooves, but in any case it remains slight pitting as long as the lands are sharp and uniformly distinct. A slightly pitted rifle as described is serviceable.

Slight pits cover the entire range from "OK" to "Partially Developed Pits," or in other words the entire range for serviceable to practically unserviceable. One of the most frequent spots where pitting occurs is along the non-driving edge of the lands for about eight inches from the breech. This first shows itself as a thin dark shadow which is nothing more than powder or primer fouling. Because of the difference in the thickness of the metal between the lands and grooves and resultant varied expansion between the two during firing, small invisible cracks occur along the edge of the lands. This fouling is deposited and is not removed from these cracks in cleaning.

As the fouling is extremely hygroscopic, pitting beneath the surface soon takes place. If this fouling is not removed, the surface is soon broken and pitting is accelerated beneath the protective coat of fouling. Pits or small holes appearing black occur on the lands or in the grooves, but regardless of numbers as long as they fall short of the partially developed pits, the barrel is serviceable.

Partially Developed Pits (State location area affected)—These are pits which have developed to such a size that the sharpness and uniformity of the lands has been affected. They vary in size and are irregular in shape and to fall under this classification must have eaten across the edge of the lands destroying the sharpness and uniformity. The affected area presents a black and roughened appearance. These pits affect the accuracy of the barrel.

The transition point from slight pits to partially developed pits is the sharpness and uniformity of the lands and must be judged by the individual inspector. As soon as a slight pit develops to such an extent that it breaks across the edge of a land and interrupts the straight line formed by the edge of the land, it is a partially developed pit. This development may progress from a land to a groove or vice versa. Pitting which has progressed

to this point is indicative of neglect.

Barrels whose conditions have advanced to the stage of partially developed pits must have continued proper care and cleaning or the defect will readily develop to the point of unserviceability. During peacetime a weapon with a partially developed pit is acceptable for service anywhere but during wartime ordinarily it is not issued to troops going beyond the continental limits of the United States.

Developed Pits (State location and size of affected area)—Pits the width of a land, width of a groove, or three-eighths inches in length, or longer, permit the passage of gas around the bullet as it is propelled through the bore. They are highly irregular in shape and the affected area presents a black and very rough appearance. The individual pits are clearly defined and readily seen with the naked eye. Another condition which is listed under the above classification is a solid area of slight pits. Obviously they do not constiute a continuous pit but because of their number and area affected it is ascertained that the barrel will soon develop into an unserviceable condition. A barrel which falls in any of the above categories is unserviceable. Again neglect is indicated.

Pitted Chamber—This pitting appears much the same as in the interior of the bore. Whether or not the pitting has progressed to such a point as to render the barrel unserviceable must be judged by the individual inspector. A positive test is the actual firing of the weapon concerned. If the cartridge is not extracted or if extraction is difficult, the barrel should be declared unserviceable. A chamber in this condition indicates neglect in care and cleaning by the user.

Inspection of Caliber .45 Pistol Barrels

THE SAME STANDARDS are generally applicable to these barrels as to caliber .30 barrel, in regards to pitting, cracks, bulges, toolmarks, gas erosion, scratches, and pitted chambers. However, because of the short effective range of the pistol, it is a general practice to allow pitting to advance beyond the unserviceable classification (developed pits) before the barrel is surveyed.

Inspection of Caliber .50 Barrel

GENERALLY the same guide is used for these as for caliber .30 barrels in referring to bulges, gas erosion, tool marks, cracks, and pitted chambers. Small pits will not render the barrel unserviceable provided it is in good condition otherwise. However, if the barrel is pitted to the extent that the sharpness of the lands is affected, or if it has a pit or pits in the lands or grooves large enough to permit passage of gas around the bullet, the barrel is, or soon will be, too inaccurate for serviceability and should be scrapped. Pits in this category range approximately one-half to three-quarters inch long or the width of one land. Proper care and cleaning of the barrel usually will pevent such damage to the bore.

The wear of the lands at the breech will also be visually examined by the inspector. If the lands are worn away so that the first six or eight inches of the bore are smooth, the barrel is unserviceable and should be scrapped.

Inspection of Shotgun Barrels

INASMUCH as this type of barrel is a smooth bore, the standards of serviceability widely differ from those of the rifled barrel.

Gas erosion is rarely present inasmuch as the type of shot load relatively reduces the confinement of the expanding gases in the chamber.

Scratches are of minor importance unless they are of such excessive depth as to weaken the metal. Scratches will, however, lead to pitting if the barrel is not cared for.

Tool marks are non-existent inasmuch as the nature of the bore makes it possible to polish the interior surface upon the completion of boring.

Cracks or splits will frequently occur in any area of the barrel but are generally confined to the muzzle. If the barrel is not completely fractured, they will appear as previously explained for rifle barrel. This condition is caused by the fatigue of metals and obstruction in the bore such as snow, mud and cleaning rags. A barrel in this condition is obviously dangerous to the user and should be declared unserviceable.

Bulges will present the same appearance as in any other type barrel and in most instances will be readily visible on the external surface. This condition is caused by the same reason as cracks. A barrel which has a bulge of any size should be removed from the weapon and be surveyed.

Dents, which are quite common in commercial shotguns and in the riot type military gun, can easily be detected during the inspection of the bore. In the riot type many will appear near the muzzle where the barrel is grooved to permit the assembly of the bayonet attachment screws. This condition is caused by the incorrect alignment of the bayonet attachment during assembly. Shallow dents will not render a barrel unserviceable as long as a shot load is used but will lower the percentage of effectiveness of the shot pattern. However, it obviously would be dangerous to use a dented barrel when employing a ball or slug load. Dents which are such a depth as to weaken the cylinder walls make firing the weapon hazardous and the barrel should be withdrawn from use.

The classification of pitting does not follow the same limitations as for the rifle, carbine, and pistol because of the absence of lands and grooves. Slight pits will cover any development which does not render the barrel unserviceable. This will range from minute cavities to

recesses of some length and area. Developed pits or pitting which would constitute unserviceability is dependent upon the judgment of the inspector inasmuch as there are no set restrictions as to a specified length, width, or depth. In determining the serviceability from pitting consideration should be given the effect that the area will have on the shot pattern and the strength of the cylinder walls.

As in other barrels a pitted chamber will cause difficult extraction or failure to extract depending upon the type of shotgun. Although it probably will not affect a shotgun shell with a paper case, a large pit would hinder extraction of a brass cased shell. Again the actual firing of the weapon is the best test.

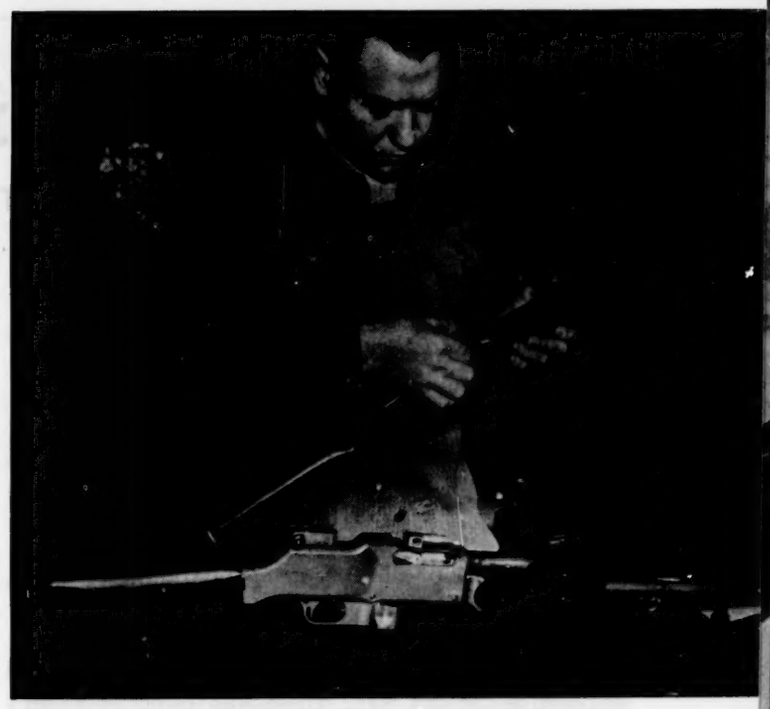
Causes of Pitting

PITTING is the direct result of rust. Rust is a compound formed by the oxidation of iron in the presence of moisture. There are two general types of rust, termed red rust and black rust. Black rust does not progress under ordinary conditions. Red rust, on the other hand, might be termed infectious as it will spread unless completely removed and a protective coating placed on the metal surface to prevent it from reforming. In its earliest stages, rust or corrosion may appear as an almost invisible discoloration. This discoloration gradually darkens in color to a yellowish or reddish tinge and progresses until pits are formed. Pits a thousandth of an inch in depth are plainly visible to the naked eye. Once pits are formed, rusting progresses rapidly around the whole cavity of the pit, and soon a caked mass of iron oxide is projected beyond the surface of the metal. Rust can be removed by an abrasive or by chemical means. The application of a corrosion preventive coating will greatly retard the progress of rusting. However, the propagation of rust can take place beneath these coatings.

The rate of corrosion varies with the conditions of metal surfaces, highly polished surfaces being much more resistant to corrosion than ordinary machined or rough surfaces. The rate also depends on temperature, pressure, atmospheric conditions, action of chemicals, chemical composition of the metal, and many other factors. Metals ordinarily employed in construction of ordnance materiel are universally subject to corrosion unless protected.

Not all petroleum derivatives are stable compounds. Over a period of time most of them decompose, especially if in contact with the atmosphere. Subsequent formations of acids attack metal. In some cases the lubricants absorb water and eventually corrosion takes place underneath the coating material.

Climatic conditions affect "atmospheric corrosion" considerably. This corrosion is slight in dry, arid sections even with high temperatures. The rate is very high in humid sections, especially in warm regions where salt is present in the air. High humidity is thus considered to be one of the most important factors in the development of rust.



All .30 caliber barrels are inspected the same way. Errors are made by improper sighting with reflector.

Exclusion of air from metal surfaces does not guarantee freedom from corrosion. Both water and oxygen are almost universally present in petroleum products in sufficient quantities to rust ferrous metals. Consequently any preservative should be removed periodically according to its type and a new coat applied.

The interiors of gun barrels present special problems in regards to rusting. Upon the cessation of firing the resultant powder and primer fouling collects moisture from the atmosphere and corrosion is propagated by the salt solution thus formed. All of our present small arms ammunition except caliber .22 cartridges, some caliber .45 cartridges, brass shotgun shells and caliber .30 carbine cartridges have what is termed corrosive primers. If the bore is not thoroughly cleaned on the day of firing and subsequently is not cared for for three consecutive days, rusting or pitting will commence and rapidly accelerates with a continued period of neglect.

Plugging the barrel with a wooden peg, cloth, or similar items will cause pitting at the point of insertion. Almost any article used will collect moisture which accordingly will cause pitting.

If the instructions contained in pertinent manuals pertaining to the care and cleaning of weapons are followed, defects in barrels caused by corrosion will be lowered to an absolute minimum.

Passing in Review

BOOKS OF INTEREST TO MARINE READERS

"Mongoloid Destructiveness . . ."

THE SECOND WORLD WAR, 1939-45; A STRATEGICAL AND TACTICAL HISTORY—MajGen J. F. C. Fuller, C.B., C.B.E., D.S.O. 412 pages, illustrated. New York: Duell, Sloan, and Pearce. London: Eyre and Spottiswoode. $5.00

Perhaps alone of all the contemporary military writers, MajGen J. F. C. Fuller possesses the recognized ability and international prestige to qualify for the task of writing, at this relatively early postwar date, a historical critique of the late war. Those who comprise Fuller's reading public are indeed legion, and they will not be disappointed with his latest contribution to military history. In fact, readers may well consider it to be his finest accomplishment in a quarter of a century of military writing.

As those who are acquainted with his works well know, Fuller's reputation rests on more than his ability to make good reading material out of cold historical facts. A distinguished soldier, Fuller has already achieved rank among the makers of military doctrine. To him, more than any other individual, must go history's accolade as the "father of armored warfare." This same far-sighted military thinking that evolved the essentials of modern armored warfare also long ago foresaw the potential role of the air weapon and the imperative need for the development of amphibious techniques and equipment. Thus, before the echoes of World War I battles had died out Fuller was advocating the tank-air team for England's armies, and he was writing about the need for amphibious tanks to be landed and recovered from mother ships embodying many of the basic characteristics later incorporated in our present-day landing ships.

Although each major operation of the late war is traced and analyzed in appropriate detail, the significance of the book lies not in its factual treatment of specific tactical and strategical maneuvers, but rather in the author's penetrating analysis of highest-level policy decisions and their effect on the conduct of war. Aside from the quite adequate factual survey, two basic themes dominate the book: the recognition of the dominant importance of sea power, and an analysis and evaluation of the allied strategic bombing effort.

Throughout the book the author demonstrates a masterful understanding of the role of sea power in modern global war, an appreciation doubly significant in view of Fuller's lifetime career as a land soldier. A sound understanding of sea power is all too seldom demonstrated by those whose military thinking has been orientated to the problems of land warfare. It was this lack of understanding that resulted, according to the author, in one of the fundamental strategic errors by the Nazi war leaders. Failure of Hitler to realize that blitz warfare of annihilation was no longer effective after reaching the English Channel was the beginning of his undoing. Fuller contends that after Dunkirk the Germans should have waged a war of attrition with the objective of seizing Suez, dominating the Mediterranean, thus precipitating a British disaster that would inevitably have been followed by the pinching out of Turkey, loss of North Africa to the Germans and Italians, and the opening of the road to Russia through Armenia and Georgia. Indeed such a series of misfortunes could have been fatal to British war effort.

While Nazi failure to grasp the importance of sea power was a major factor leading to ultimate German defeat, the able use of sea power by the Allies on numerous occasions resulted not only in victory over water areas but also contributed to major successes on land. As an example of proper use of allied sea power, the author explains how it was the coordinated action of the Mediterranean fleet that made Wavell's brilliant desert victory possible.

Of special interest to Marines who pioneered modern landing doctrine is Gen Fuller's opinion that such modern amphibious doctrine was "In all probability . . . the most far reaching tactical innovation of the war." To find an author of Gen Fuller's stature recognizing both the virtue of our concept of balanced naval forces and the tremendous importance of modern amphibious doctrine is a reassuring discovery.

The portions of the book devoted to the subject of the allied strategic bombing effort will be startling to most American readers. While the value of strategic bombing, as employed in World War II, has been subjected to severe authoritative criticism in England, we on this side of the Atlantic have been conditioned to consider the strategic bombing effort as a decisive factor in the conduct of the war. If it does nothing else, Gen Fuller's book will make its readers much more curious as to the validity

of some currently held beliefs as to the effectiveness of strategic bombing.

Those who believe that questions of morality have no place in modern war will do well to read the last chapter of this book. In it Gen Fuller eloquently assails the policy of "Mongoloid destructiveness" of unrestricted strategic bombing, criticizing it on military as well as ethical grounds. So forcefully and logically does the author plead the case against mass destruction that there is good reason to believe that future historians and critics may class the last chapter as one of the most profound and enlightened writings to emerge from the mass of World War II historical literature.

This is a book that should be read and studied by every person, military or civilian, who is interested in how best to protect our nation and preserve our civilization. JDH

Forgotten War . . .

THE WAR OF 1812 — Francis F. Beirne. 410 pages, with index, illustrated with maps. New York: E. P. Dutton and Company. $5.00

Here is an excellent over-all account of our most forgotten war. Mr Beirne, a Baltimore newspaper man, makes no pretensions to being a historian. He admits that his first intention was to treat humorously a subject fairly bristling with paradox and absurdity, but he soon came to the realization that no war is very funny to those who participate in it, and that men who fought and died for their country, however ineffectually, deserve something better of posterity than wise cracks. The result is a well written, highly readable, and essentially accurate book on an event in our history with which all Americans can afford to be more familiar.

Few wars in any nation's history have been more ignoble in motive and inglorious in execution. It was we who declared war—and later sued almost abjectly for peace. Our provocation, British high-handedness at sea, might well have justified our course, but the ulterior motive of the war party, frankly discussed in Congress, was nothing less than the conquest and annexation of Canada: a friendly neighbor beside whom we had lived in amity for decades.

We did not conquer any part of Canada. Instead, the British (and Canadians) captured Detroit and Chicago, conquered nearly all of the present state of Maine, ravaged our coasts at will, and burned our national capital. The war began with disaster and ended in near-catastrophe, with our national economy on the brink of prostration and the New England states openly threatening secession from the Union, an issue whose bloody crisis was to be postponed for nearly half a century. By the time he has finished this book, the reader will have a better understanding of what Francis Scott Key had in mind in the fourth stanza of "The Star Spangled Banner" when he referred to the U. S. as "this heaven-rescued land."

Our tiny Navy covered itself with glory, but was swept from the high seas without affecting the outcome of the war one iota, though small fleet actions on Lake Erie and Lake Champlain had an important bearing on the land fighting. To say that the Army was fouled-up beyond all recognition is simply to state a literal fact: by the time the incompetents had been weeded out, every man who had held general officer rank at the beginning was either retired (voluntarily or otherwise) or had been relegated to some noncombatant post. Assault regiments were commanded by engineers, artillerymen and infantry lieutenants breveted to lieutenant colonel: leaders screened in some of the most savage and costly fighting, in proportion to numbers engaged, which our armed services have ever experienced. And the two top commands in the most active sector were held by a former militiaman and a young regular major who was breveted major general at the age of 28.

It seems to this reviewer that Mr Beirne has done less than justice to the achievements of this oddly assorted pair: Jacob Brown, whom Fletcher Pratt has called "The best battle captain in our history;" and Winfield Scott, the brilliant professional, whose fame rests mainly on his exploits in Mexico more than a generation later. They pulled together an army battle-happy from two years of almost unrelieved defeat, retrained it from the ground up, and led it to victory in four stand-up fights in three months against some of the best troops Britain has ever put in the field. The author titles his chapter on the 1814 Niagara campaign "Glory, But Nothing More," overlooking the appalling moral effect on the enemy of Chippewa, Lundy's Lane and the two Fort Erie actions, believed by many students of the period to be the determining factor in leading the British, all-victorious nearly everywhere else, to settle for a draw. This oversight may be accounted for by the fact that the bibliography lists no Canadian sources and only two British, one of them notoriously biased and untrustworthy.

The book has little to say about Marines specifically, but, as Col Metcalf's history points out, the Corp's fortunes were at a low ebb during this period, its actions invariably tied up with the Navy's. Two other noteworthy omissions: the traditional origin of the West Point cadet uniform on the battlefield of Chippewa, and how the symbolic cartoon figure of Uncle Sam came into being.

Mr Beirne draws only on secondary sources, and not very many of them, which tends to convey a certain lack of depth to the student of the period. But the virtue of his work is that it is not addressed to the student, but to the average intelligent reader. To classify it as

sugar-coated, or predigested, history would be both unjust and inaccurate. It is an interesting story in itself, interestingly told by a highly capable writer possessing what is sometimes called a "historical conscience." Americans generally have long been notorious as the people in the world least conversant with their own national past. A few more books of the calibre of Mr Beirne's will go a long way toward making that conception obsolete. FOH

G-2s in War and Peace . . .

INTELLIGENCE IS FOR COMMANDERS — LtCol Phillip B. Davidson and LtCol Robert R. Glass. 189 pages, illustrated. Harrisburg, Pennsylvania: The Military Service Publishing Company. $3.85

This book is worth the price, and suitable for a professional library. As a highly readable explanation of the theory and principles of intelligence, it is a good text for all officers, and particularly worthwhile to the officer approaching command rank.

While the authors define their book as a text, it is also a sales talk. By pointing up each principle with an aptly selected historical or illustrative example, the authors are selling good intelligence methods. The unhappy S-2 (or G-2) who feels he is gathering dust on the shelf will do well to read this book, then wheedle his CO into reading it. If he has to deal with unit commanders who are bored by EEIs and with troops who are more interested in souvenir-hunting than enemy identifications, he will find here a wealth of material tailor-made for persuasive conversations and indoctrination lectures.

Essentially, the material contained in *Intelligence is for Commanders* can be found in MCS 3-1 and other Marine Corps as well as Army Publications. Nothing new or radical is added; but the subject is crystallized and clarified by an informal, yet dignified style which can be read and retained at a good clip. To the junior officer who may have considered intelligence as an "occult science" and to the commander who regards his S-2 as a fifth wheel, it may be an eye opener.

Built around an "Intelligence Cycle" (direction of the collection effort, collection of information, processing of information, and use of intelligence), this book deals primarily with theory rather than technique of intelligence (combat and otherwise); it is aimed at all levels. While Corps and Army sized units are frequently mentioned, battalion, regiment, and division are not neglected. The emphasis on theory does not crowd out some helpful chapters directed primarily at the intelligence officer.

Editorially, the book is divided into three parts. Part One consists of an analysis of the principles of intelligence, each chapter illustrating and applying the principles by historical example and map exercise (the authors' technique here is excellent; enough is given in each case to make the point clear, but not enough to render it tedious). Part Two concerns the duties of the intelligence officer. It includes, among other things, suggestions for studies of terrain and weather, counterintelligence functions, intelligence SOPs, and intelligence training. This part brings into focus a number of subjects on which fuzzy notions are often held. Part Three is a group of typical forms used in intelligence functioning, similar to that in the back of the Marine Corps Staff Manual. Each of these forms is discussed and applied to a situation in Parts One and Two.

The value of this publication is increased by the fact that, in Part Two, it considers *both* time of war *and* time of peace. The S-2 (or G-2) and the commander may well find some good practical suggestions of current value in regard to the latter.

Some details do not coincide exactly with Marine Corps teaching (e.g., the five terrain factors are somewhat altered from the Marine Corps Schools concept by combination of observation and fields of fire into one and the addition of terrain objectives; and some readers may rare back at the authors' contention that dismounted patrols are one of the least valuable intelligence agencies. The authors support their point well, however).

Typography and lithography are good, except that two illustrations have been reversed (Plates 10 and 11). The organization of the subject matter is logical and well-developed. The style is polished and the writing is careful. Each chapter is nicely summarized at the end. It is more valuable as an instructional and persuasive text than as a reference text. An index is provided, but is no more complete than in the average military text. Editorially, the weakest point is a separate map and overlay contained in an envelope in the back of the book; they would be less apt to get lost if somehow attached to the binding.

The authors are both instructors at the Command and General Staff College, Fort Leavenworth, Kansas. During the preparation of their manuscript, they called upon other members of the faculty, particularly those of the School of Intelligence, for comment and criticism. The book carries a Foreword by LtGen Manton S. Eddy, Commandant of the Command and Staff College. ARC

The Reich Navy . . .

HITLER AND HIS ADMIRALS—Anthony K. Martienssen, 215 pages, illustrated with photographs and maps. New York: E. P. Dutton and Company, Inc. $4.00

Adolph Hitler once told Grand-Admiral Erich Raeder: "On land I am a hero, but at sea I am a coward." Here is a book which bears him out. Martienssen's history of

the German Navy in World War II deals with a subject heretofore only lightly covered by military writers.

The documents used by the author in preparing this book are worthy of mention since their very nature seems to indicate the accuracy of this account of the German Navy. These captured documents included four particularly important papers, namely: the minutes of Hitler's conferences with the Commander-in-Chief of the Navy; the War Diaries of the Naval Staff; operational orders covering every major activity, military and political, in which the Navy had been concerned; and the personal files of Adm Raeder, who had been Commander-in-Chief from 1928 until January 1943. Using these documents, Martienssen, as press officer for the British Admiralty, edited an official seven volume work called *Fuehrer Conferences on Naval Affairs*. By combining evidence given at the Nuremberg trials with the material included in the "Fuehrer Conferences" the author has produced an impressive naval as well as political history.

The book is divided into four main chronological Parts. The first, called "Preparations For War," covers the period 1933-September 1939 and includes as the opening chapter important remarks regarding the personalities of Hitler, Raeder, and Doenitz. These "main characters" naturally predominate throughout the book and readers will feel particularly well acquainted with them by the time the last chapter is finished. The origin and functioning of the Supreme Command of the Armed Forces (*Oberkommando der Wehrmacht*—the OKW) are described along with the pre-war development of the German Navy. Here the author states: "But in spite of this reforming zeal, the German High Command had failed to learn the outstanding lesson of the First World War—the decisive importance of sea power, even to a continental nation. They did not, in the beginning, envisage war against England, the only country whose sea power they respected, and they did not consider that naval forces would be required as a defense against France or Russia. . . ."

Raeder's plan for building an adequate navy for Germany became particularly complicated when, in 1937, Hitler for the first time named the British Empire as an eventual target for the Wehrmacht. To insure that the much needed time for naval construction would be available Hitler promised that there would be no war with England until 1944 or 1945. Raeder started to put the German Navy on a war footing in 1938 but it was a late start and 3 September 1939, the date that war broke out with England and France, came four or five years too soon.

Part II called "Attack" covers the period September 1939-October 1942 and includes the early phases of the Battle of the Atlantic, the invasion of Norway and Den-

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mark, and the planning for the invasion of England—Operation "Sea Lion." Marines will find this portion of the history particularly informative. The various problems encountered due to the extreme differences of opinion between the Army, Navy and Luftwaffe all serve to indicate how extremely inflexible and inadequate the German military machine proved to be when faced with task of planning an invasion of England. Martienssen describes the various delays from February 7, 1940, the date of the original directive, until the final cancellation of the project in January, 1942.

The balance of this portion of the history includes Hitler's preparations for the attack on Russia, a detailed story of the loss of the battleship *Bismarck*, the heroic defense of Malta and a continuation of the numerous events involved in the battle of the Atlantic. Raeder's continual fight with Goering for cooperation and control of naval air forces is frequently brought to the reader's attention. The author illustrates Raeder's contention that naval forces needed air support by describing several well coordinated and very successful air-sea actions against allied convoys to Russia.

Part III covers the period from October 1942 to July 1944 and is appropriately entitled "Defense." Here the author describes the events occurring from the October 1942 "turning point of the war" up to and including the invasion of Western Europe. The events surrounding Raeder's resignation and his replacement by Adm Doenitz are recounted in great detail. Like Raeder, Doenitz came out strongly for an air branch of the Navy stressing the joint use of naval aircraft and the submarine. The failure in Tunisia and the collapse of Italy lead up to the author's story of Hitler's anti-invasion preparations and the invasion itself.

Part IV is the story of the final collapse of the German Reich. The history of the July 20, 1944 attempt to assassinate Hitler lends itself particularly well to Martienssen's style of including extracts of captured documents and personal papers. The book ends with Adm Raeder's description of the last few days in Berlin and his (Raeder's) conjecture as to what became of Adolf Hitler.

This book, along with B. H. Liddell Hart's, *The German Generals Talk* will give readers a complete story of the price Germany paid for dictatorship. To the military mind, certainly the outstanding contribution of *Hitler and His Admirals* lies in Martienssen's interpretation of the voluminous naval and personal records and the resultant accurate naval history of Germany. Several appropriate documents are appended to avoid spoiling the continuity of the history and an excellent index completes this worth while story of World War II at sea as Hitler and his admirals saw it. RLK

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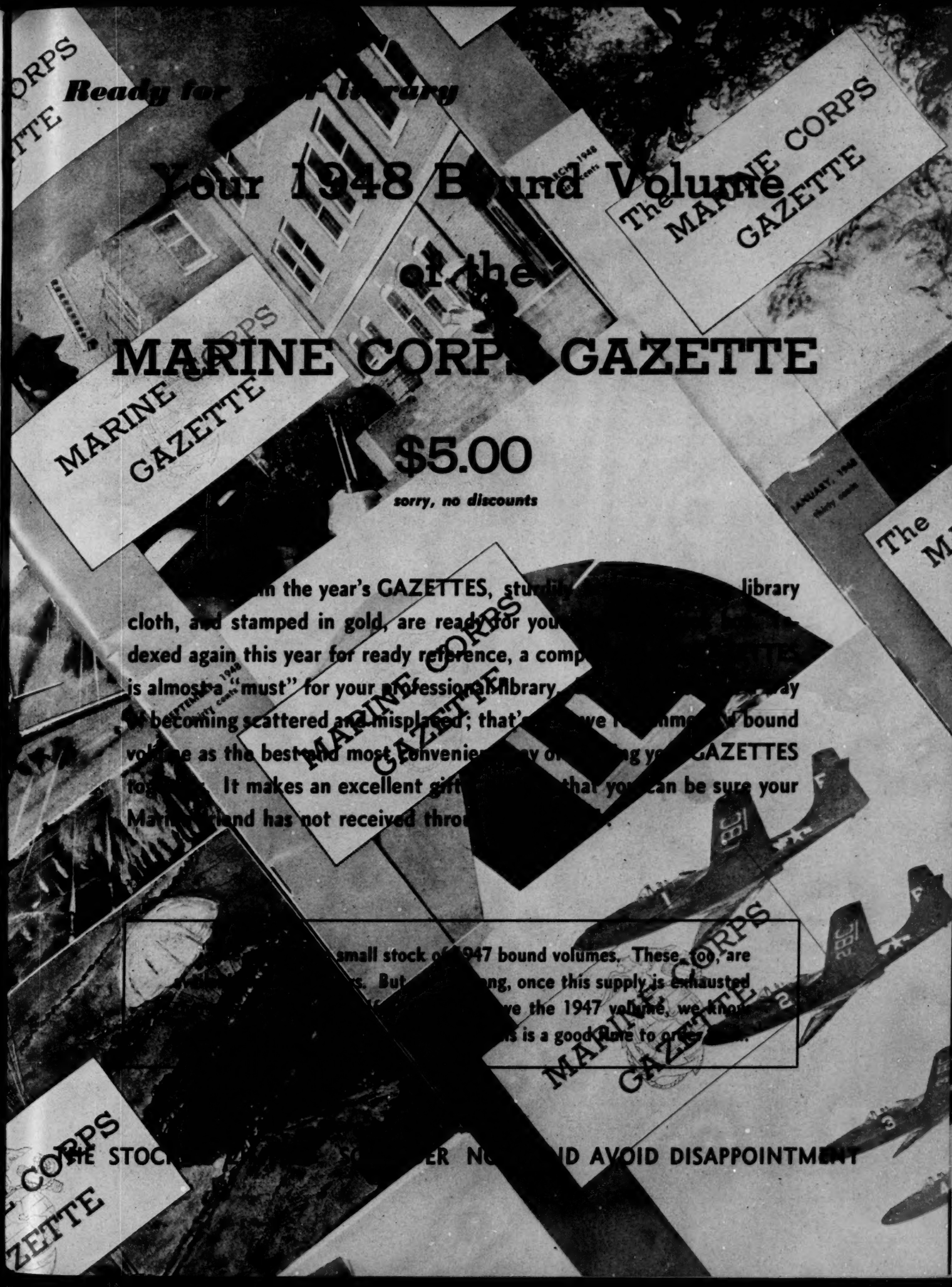

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The New M1 Course

MARINE SHOOTERS FIRING THIS YEAR HAVE A chance to become better shots even though they will fire fewer rounds. Target year 1949 features an entirely revamped qualification course for the M1 rifle. The new course is given in detail in Marine Corps General Order No. 5, dated 20 November 1948.

Shooters for qualification and requalification will now fire 50 rounds with a possible score of 250 instead of the 68 rounds and possible 340 formerly fired.

The new course will conserve ammunition, but more important, it should also make better shooters. It de-emphasizes rapid fire and goes back to the pre-war standard of making every shot a well-aimed one.

Marines firing the "A" course now lead off with 10 rounds standing slow fire from 200 yards at the "A" target (10 inch bull). This is followed by a string of 10 shots, standing to sitting, in 50 seconds at the "D" target (head and shoulders bull). In order to fire 10 rounds rapid fire two rounds are loaded initially in a loose clip. When these two rounds are fired and the clip ejected, a full clip of eight rounds is inserted.

At 300 yards, five rounds are fired sitting, and five are fired kneeling at the "A" target. At the same range 10 rounds are fired, prone from standing, in 60 seconds at the "D" target.

From 500 yards the shooter fires 10 shots slow fire at the "B" target (20 inch bull).

Marksmanship results forwarded so far by recruit platoons at Parris Islands and San Diego indicate that the percentage of qualifications will be about the same as with the old course—around 80 per cent. However, the larger number of shots delivered on the "A" target, particularly the 10 shots fired off hand as compared to the four shots formerly fired, is expected to reduce the number of experts and sharp-shooters and make these designations more significant.

The new qualification scores are 185 for marksman, 207 for sharpshooters, and 218 for expert.

It will be noted that while the old course had 48 rounds out of a total 68 fired rapid fire, the new course has 30 rounds slow fire to 20 rounds rapid. Also the time allowed for each rapid fire shot has been increased from an average of four seconds per shot to five seconds. Rifle marksmanship experts believe the new course will discourage trigger-jerking and increase the number of well-placed shots. Marines will learn to apply their fire effectively in subsequent combat firing courses.

Only the course has been changed. No changes in technique, positions, or sling adjustments have been made.

A NEW QUALIFICATION COURSE for members of Organized Reserve units is also authorized. Labeled the "B" course, all firing is done from the 200 yard line. With no time limit, the following positions are fired: 10 rounds prone, five rounds sitting, five rounds kneeling, and 10 rounds standing. There are two strings of rapid fire, each calling for 10 rounds to be delivered in 50 seconds. These are fired prone from standing, and sitting or kneeling (at the shooter's option) from standing.

All slow fire is delivered on the "A" target; all rapid fire is at the "D" target. With 50 rounds fired for record, there is a possible score of 250. Qualifications are 190 for marksman, 215 for sharpshooter, and 225 for expert.

The greatest advantage in firing all positions from one range is the amount of time saved. The tight two-weeks training schedule of the Organized Reserve units allows only three days for qualification and requalification against a two-weeks range period normally allowed regular marines.

GENERAL ORDER NO. 5 also gives the qualification courses for the other small arms; the carbine, caliber .45 pistol, caliber .38 pistol, submachine gun, automatic rifle, and riot-type shotgun. In general, marines will fire for qualification only the weapons with which they are primarily armed. Regular Marine officers may fire additional weapons. All personnel under the rank of brigadier general and under 36 years old are required to fire (with certain exceptions). Officers and men over 36 have the option of firing or not as do reserve personnel on continuous active duty.

In addition to the "A," "B," and familiarization courses for all small arms, there is a "C" course which may be fired with .22 caliber rifles and pistols.

For the FMF and Organized Reserve units the same general order gives the training courses and ammunition allowances for all crew-served weapons ranging from the light machine gun to the 155mm gun.